



Room Air Conditioner

SERVICE MANUAL

MODEL : LS-J0761CL / CM / CN / CD / CS
LS-J0761HL / HM / HN / HD / HS
LS-J0962CL / CM / CN / CD / CS
LS-J0962HL / HM / HN / HD / HS
LS-J0963CL / CM / CN / CD / CS
LS-J0821CL / CM / CN / CD / CS

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Functions

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (THERMISTOR)

Room temperature control

- Maintains the room temperature in accordance with the Setting Temp.

Starting Current Control

- Indoor fan is delayed for 5 sec at the starting.

Time Delay Safety Control

- Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

- High, Med, Low, CHAOS

Operation indication Lamps (LED)

- ① --- Lights up in operation
- ☆ --- Lights up in Sleep Mode
- ⌚ --- Lights up in Timer Mode
- ✱ --- Lights up in Defrost Mode (for Heating Model)

OUTDOOR --- Lights up in compressor operation (for Cooling Model)

Soft Dry Operation Mode

- Intermittent operation of fan at low speed.

Sleep Mode Auto Control

- The fan is switched to low(Cooling), med(Heating) speed.
- The unit will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.

Natural Air Control by CHAOS Logic

- The fan is switched to intermittent or irregular operation
- The fan speed is automatically switched from high to low speed.

Airflow Direction Control

- The louver can be set at the desired position or swing up and down automatically.

Defrost(Deice) control (Heating)

fU Both the indoor and outdoor fan stops during defrosting.

Hot-start Control (Heating)

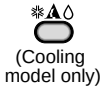
fU The indoor fan stops until the evaporator pipe temperature will be reached at 28°C.

Remote Controller

Operation ON/OFF



Operation Mode Selection



Cooling Operation Mode.(☼)

Auto Operation Mode.(▲)

Soft Dry Operation Mode.(◇)

Heating Operation Mode.(❄)

Fan Speed Selection



(Low)



(Med)



(High)



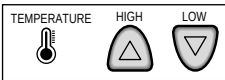
(CHAOS)

Room, Temperature Display



: (High: 39°C ↔ LOW : 11°C)

Temperature Setting



Cooling — Down to 18°C
Up to 30°C

Heating — Down to 16°C
Up to 30°C

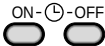
JET COOL



Setting the Time or Timer



Timer Selection



: OFF, ON, OFF ↔ ON

Timer Setting



Timer Cancel



: Cancel Sleep Mode, Timer ON or Timer OFF

Sleep Operation



: 1, 2, 3, 4, 5, 6, 7, Off Timer

Airflow Direction Control



Fan Operation Mode



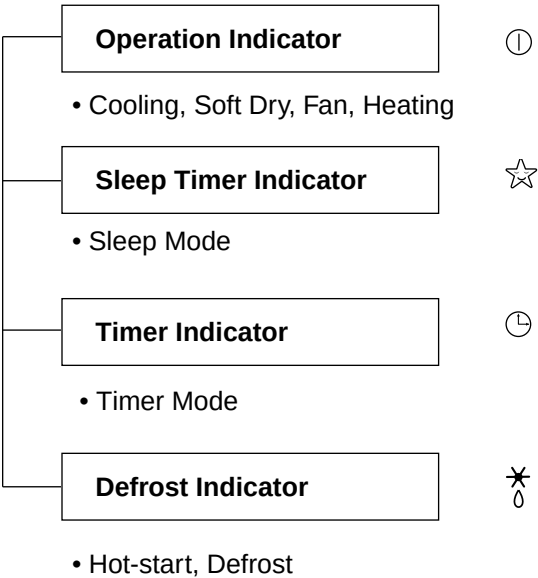
: Fan Operates without cooling or heating.

Reset

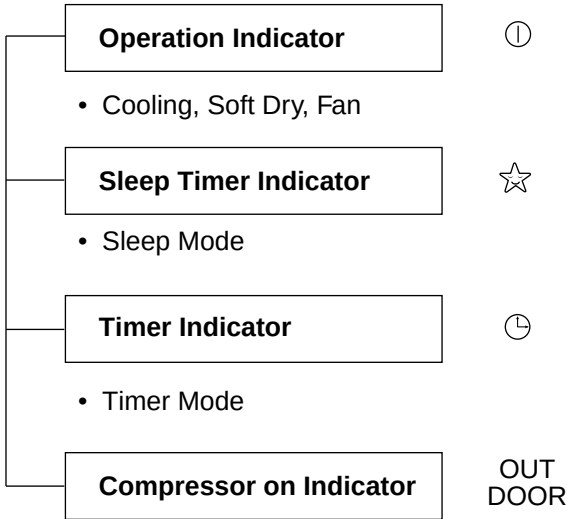
● RESET

Display Function

1. Heating Model



2. Cooling Model



Self-diagnosis Function

■ Thermistor Error Indicator

- When the indoor pipe sensor or the room temperature sensor is open or is shorted, the error is indicated.
- To indicate the error, the operation LED (or the cooling LED) flashed at 3 sec interval.
- When the error is cleared, the LED stops flashing, the operation (or cooling) LED is on.
- While in appliance pause, the error is not indicated.

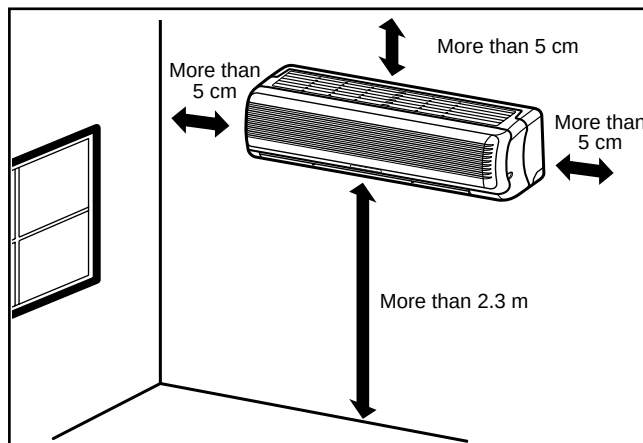
Installation

1. Installation of indoor, Outdoor unit

1) Selection of the best location

1. Indoor unit

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to prevent the air circulation.
- A place where air circulation in the room will be good.
- A place where drainage can be easily obtained.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.

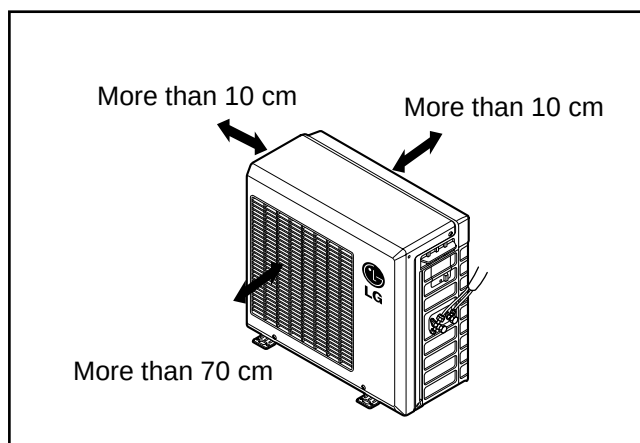


CAUTION

Install the indoor unit on the wall where the height from the floor is more than 2.3 meters.

2. Outdoor unit

- If an awning is built over the unit to prevent direct sunlight or rain exposure, be careful that heat radiation from the condenser is not restricted.
- There should not be any animals or plants which could be affected by hot air discharged.
- Ensure the correct distance is left from the wall, ceiling, fence, or other obstacles as indicated in the diagram.



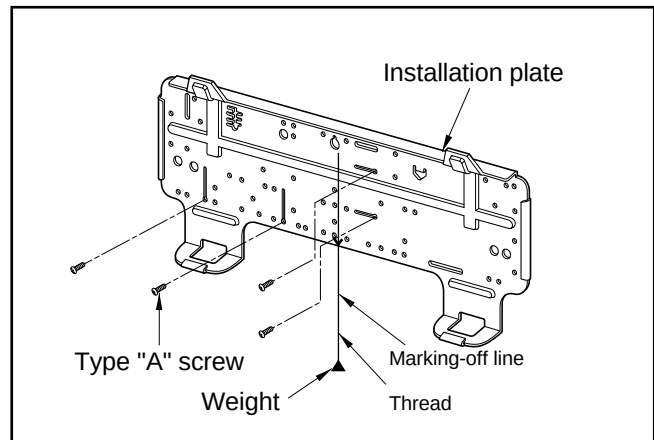
2) Indoor Unit Installation

The mounting wall should be strong and solid enough to protect it from the vibration.

1. Mount the installation plate on the wall with four Type "A" screws.

(if mounting the unit on the concrete wall, consider using anchor bolts.)

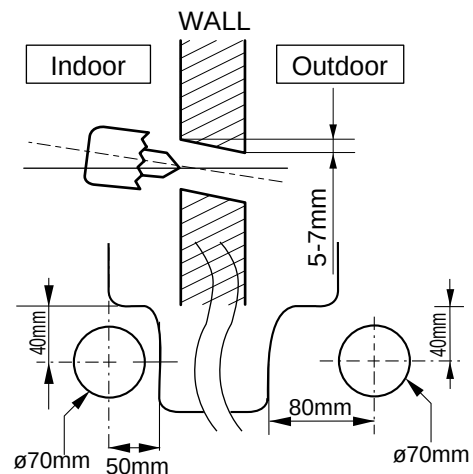
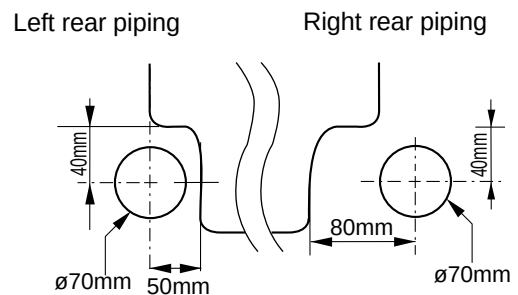
- Always mount the Installation plate horizontally by aligning the marking-off line by means of the thread and a level.



2. Drill the piping hole with 70mm dia. holecore drill.

- Line according to the arrows marked on lower the left and the right side of the Installation Plate.
The meeting point of the extended line is the center of the hole.
- Drill the Piping hole at either the right or the left and the hole should be slightly slanted to the outdoor side.

The lower left and right side of Installation Plate

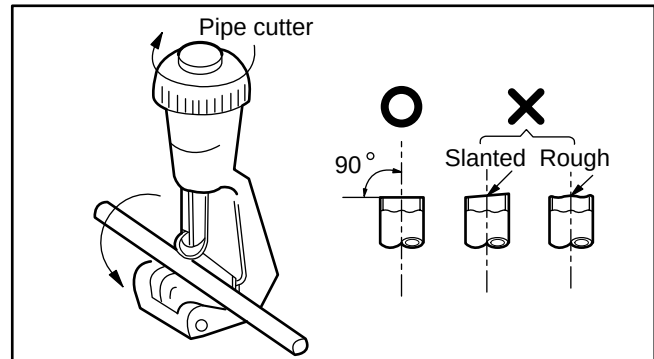


2. Piping and Drainage of Indoor Unit

1) Preparation of Piping

1. Cut the pipes and the cable.

- Use the accessory piping kit or the pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than measured distance.
- Cut the cable 1.5m longer than the length of the pipe.

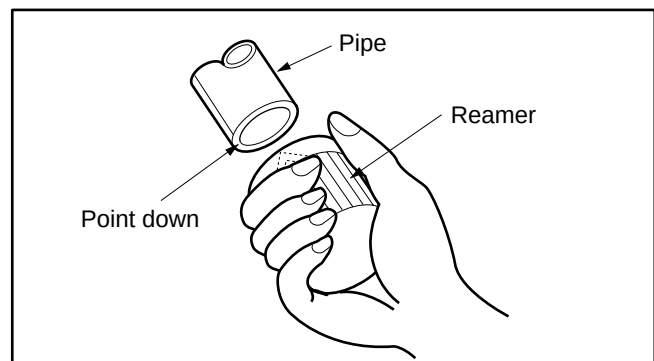


2. Remove burrs.

- Remove burrs from cut edges of pipes.
- Turn the pipe end toward down to avoid the metal powder entering the pipe.

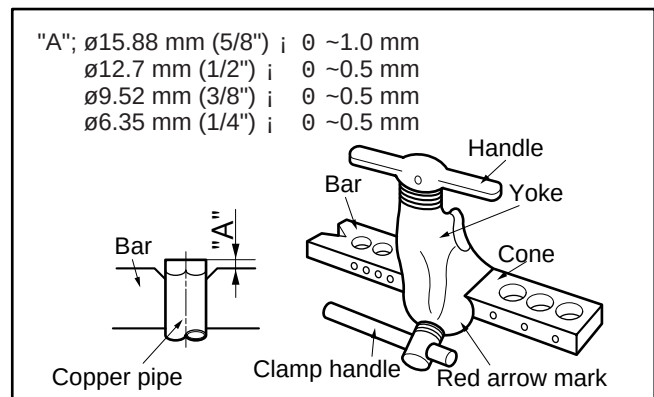
Caution:

If burrs are not removed, they may cause a gas leakage.

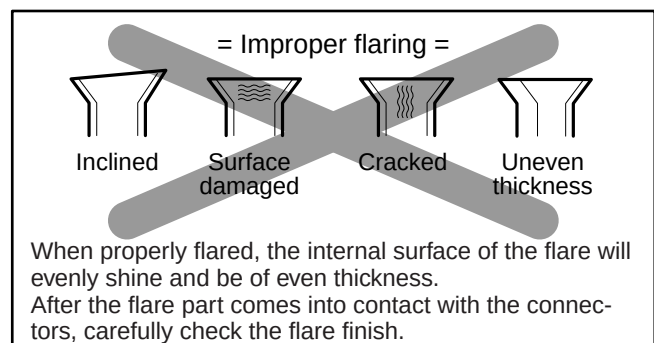


3. Flaring the pipes.

- Insert the flare nuts, mounted on the connection ports of both indoor and outdoor unit, onto the copper pipes. (When the flare nuts are removed from the indoor unit.) Some gas may leak, as some gas is charged to prevent the inside of the pipe from rusting.
- Fit the copper pipe end into the Bar of flare tool about 0~1.0mm higher. (See illustration)
- Flare the pipe ends.



4. Tape the flaring portion to protect it from the dust or damages.

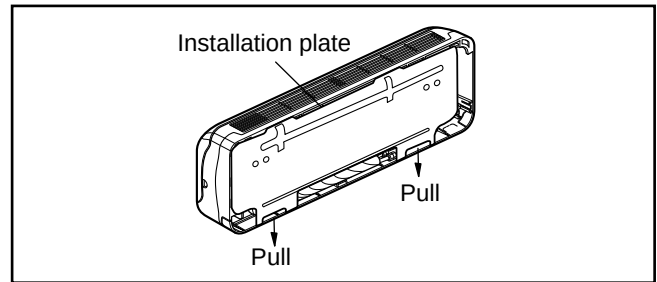


2) Connection of Pipings

1. Remove the installation plate

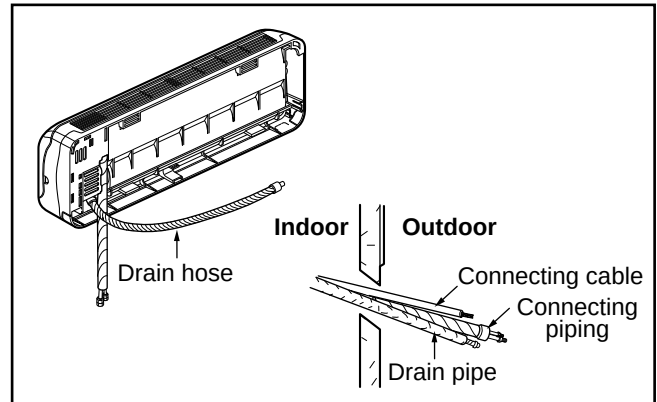
- Pull the two 'Δ' marked portion of bottom of the chassis and pull the installation plate out of chassis.

2. Route the drain hose and the indoor tubing.



For right rear piping

3. Insert the piping, the connecting cables and the drain pipe through the piping hole on the wall.

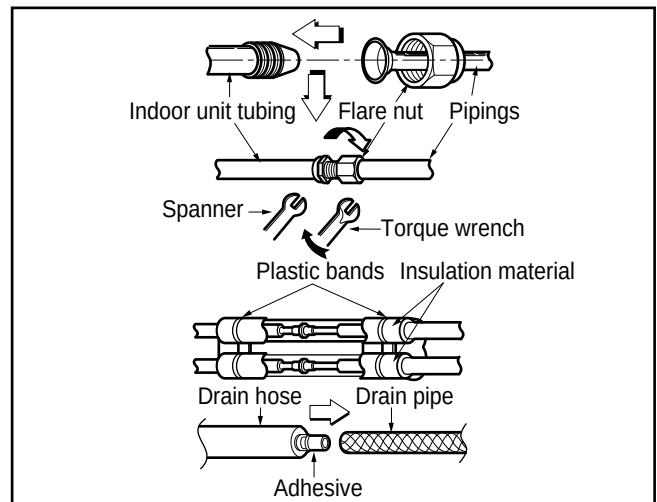


4. Connect the piping and the indoor tubing, and drain hose and drain pipe.

- Don't connect the cable to the indoor unit.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m
Gas Side (1/2")	5.5kg·m

- Wrap the insulation material around the connecting portion.

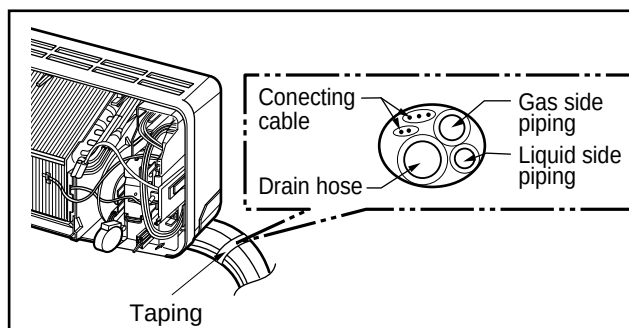


- Glue up the connection portion of drain hose and drain pipe.

5. Bend the tubing as shown in the figure and bind the piping, the connecting cables and the drain hose altogether.

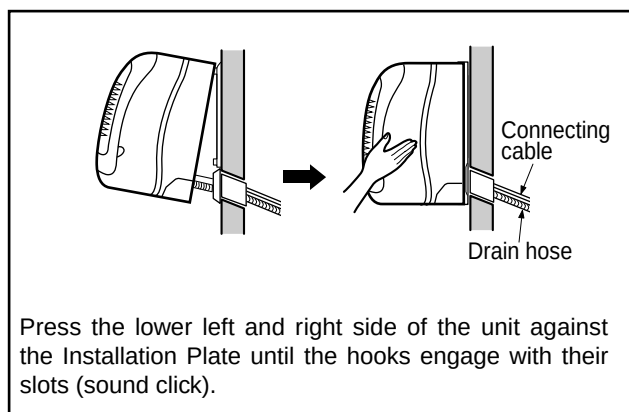
- Make a small loop for easy connection later.

6. Wrap the tubing, the drain hose and the connecting cable with tape.



7. Indoor unit installation

- Hook the indoor unit onto the upper portion of the installation plate. (Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.)
Ensure the hooks are properly seated on the installation plate by moving it in left and right.

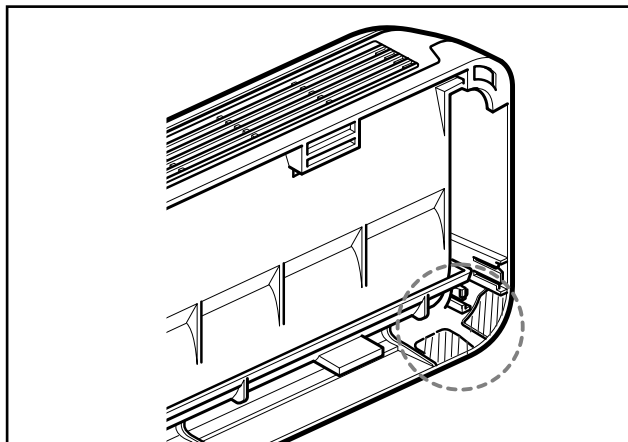


CAUTION

Take care to arrange the piping, drain hose and cables as the feature 7 page for inserting it into the indoor unit and mount the indoor unit on the installation plate.

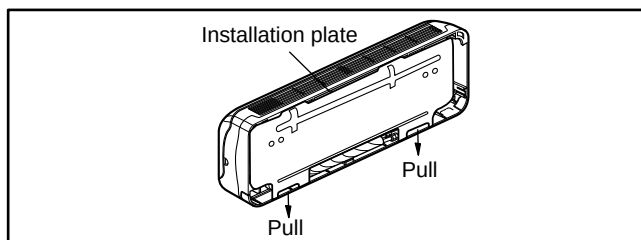
CAUTION

When install, make sure that the remaining parts must be removed clearly so as not to damage the piping and drain hose, especially power cord and connecting cable.



For left rear piping

3. Insert the connecting cables, the drain pipe and connecting piping through the piping hole on the wall.

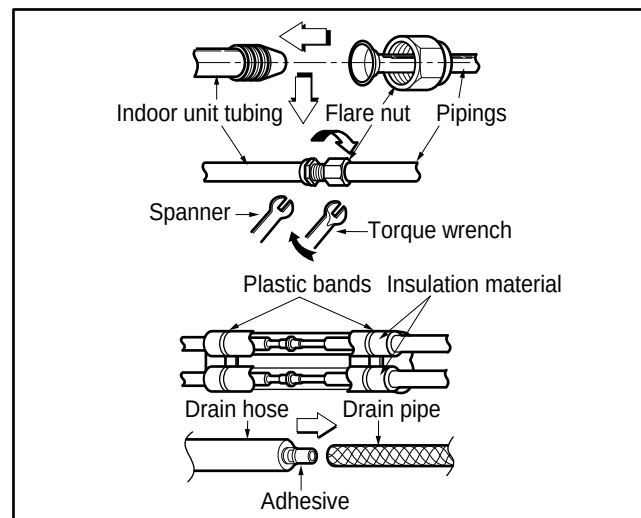
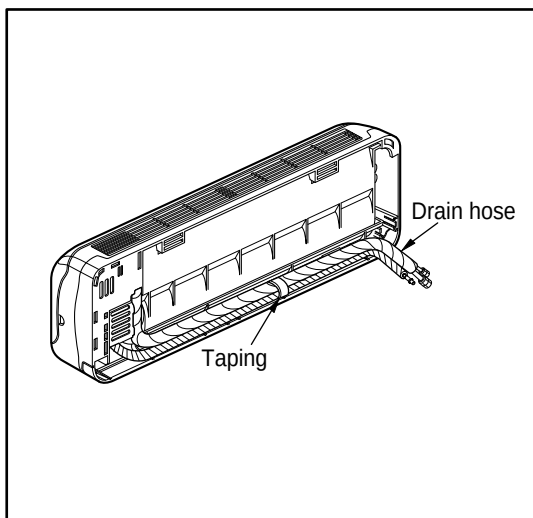
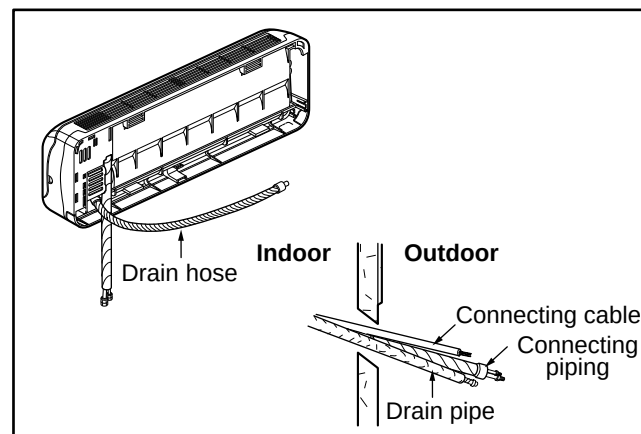


4. Connect the piping and the indoor tubing, and drain hose and drain pipe and place the drain pipe into the chassis.

- Don't connect the cable to the indoor unit.
- Make a small loop for easy connection later.
- Glue up the connection portion of drain hose and drain pipe.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m
Gas Side (1/2")	5.5kg·m

5. Bend the drain hose and bind the drain hose, the piping and the connecting cables altogether.

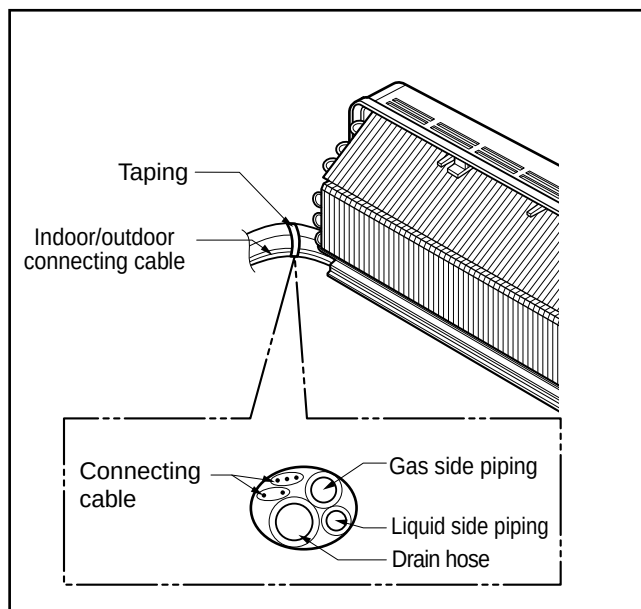


6. Wrap the insulation material around the connecting portion.

CAUTION

Take care to arrange the piping, drain hose and cables as the figure 7 page for inserting it into the indoor unit and mount the indoor unit on the installation plate.

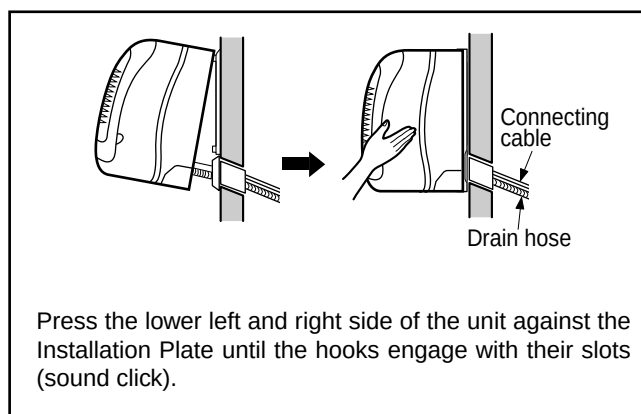
7. Wrap the tubing, the drain hose and the connecting cable with tape.



8. Indoor unit installation

- Hook the indoor unit onto the upper portion of installation plate. (Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.)

Ensure the hooks are properly seated on the installation plate by moving it left and right.

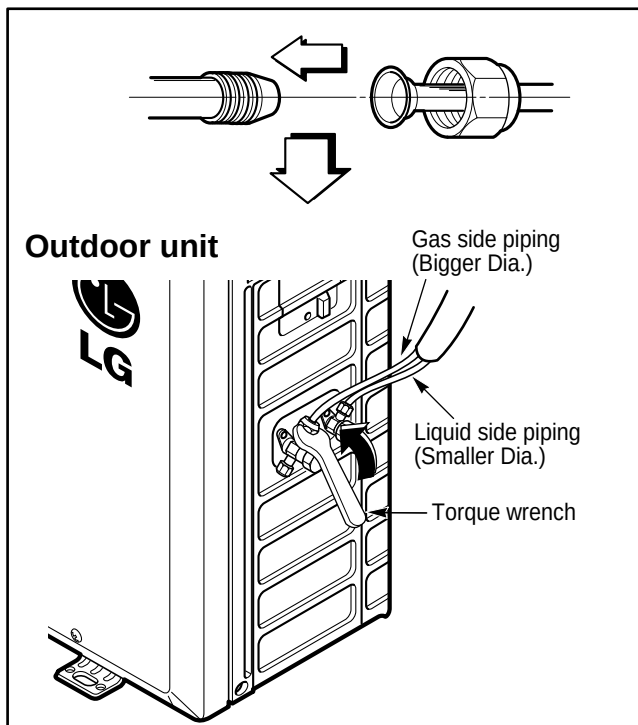


3. Connecting Piping and Cable to the outdoor unit

1) Connecting the piping to the Outdoor unit

1. Align the center of the piping and sufficiently tighten the flare nut with fingers.
2. Finally, tighten the flare nut with torque wrench until the wrench clicks.
 - When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m
Gas Side (1/2")	5.5kg·m



CAUTION

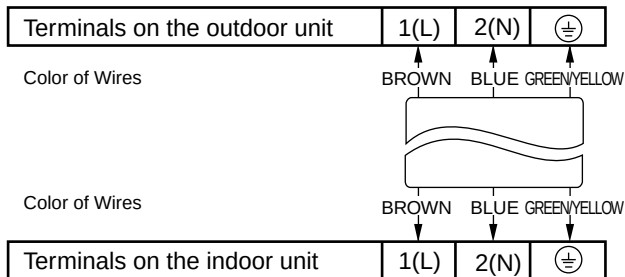
After the confirmation of the above conditions, prepare the wiring as follows:

- 1) Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.
- 2) Provide a circuit breaker switch between power source and the unit.
- 3) The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)
- 4) Specification of power source.
- 5) Confirm that electrical capacity is sufficient.
- 6) See to it that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- 7) Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)
- 8) Never fail to equip a leakage breaker where it is wet or moist.
- 9) The following troubles would be caused by voltage drop-down.
 - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
 - Proper starting power is not given to the compressor.

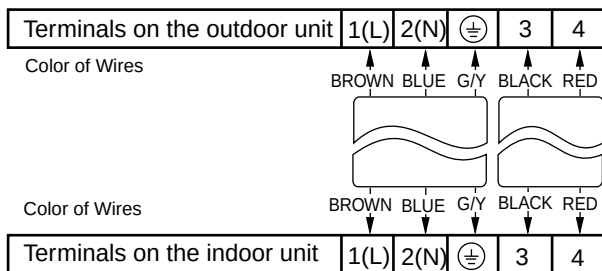
2) Connection of the cable

1. Remove the cover control from the unit by loosening the screw.
Connect the wires to the terminals on the control board individually as the following.

1) Cooling only type

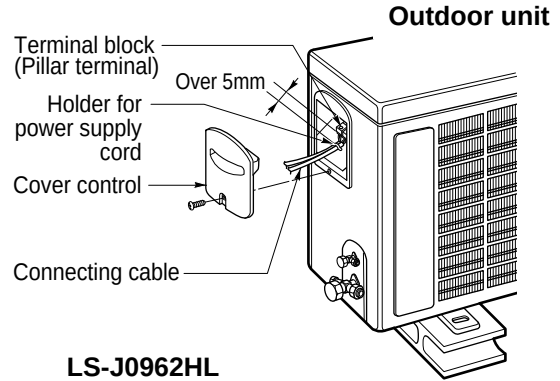
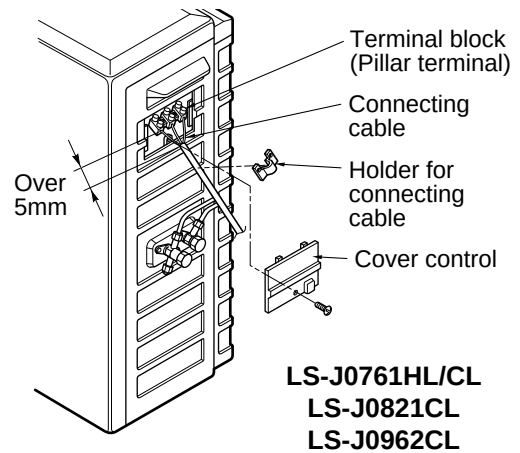


2) Cooling & Heating type



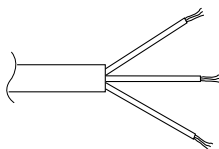
2. Secure the cable onto the control board with the holder (clammer).
3. Refix the cover control to the original position with the screw.
4. Use a recognized circuit breaker 16A between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.

Outdoor unit



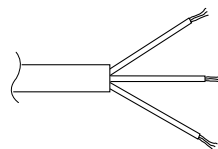
The length of the power supply cord should be over 1.8m measured from the power supply cord entry of the cabinet to the middle of the live pin of the plug.

The power cord connected to the indoor unit should be complied with the following specifications (Type H05VV-F approved by HAR or SA).



NORMAL CROSS-SECTIONAL AREA
1.0mm²

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H07RN-F approved by HAR or SA).



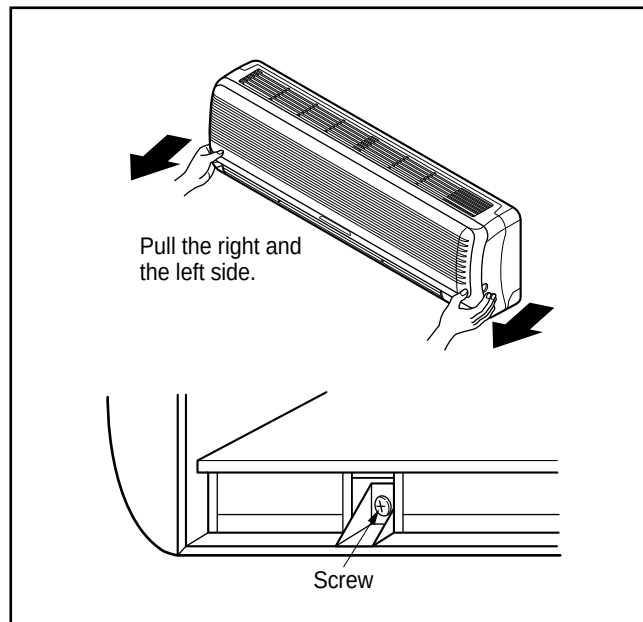
NORMAL CROSS-SECTIONAL AREA
1.0mm²

4. Checking the Drainage and Connecting the cable to Indoor unit

1) Checking the Drainage

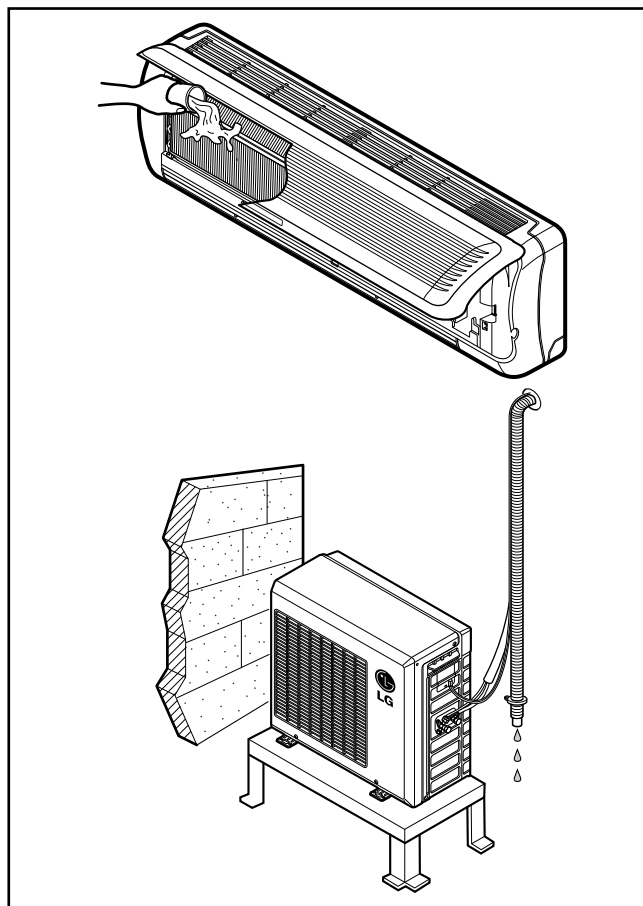
1. Remove the Grille from the cabinet.

- Set the up-and-down air direction louver to the open position (horizontally) by finger pressure.
- Remove the securing screws.
- To remove the Grille, pull lower the left and right side of the grille toward you (slightly tilted) and lift it straight upward (Two tabs on the top inside edge of chassis are clear of their slots).



2. Check the drainage.

- Pour a glass of water on the evaporator.
- Ensure if water flows drain hose of indoor unit without any leakage.

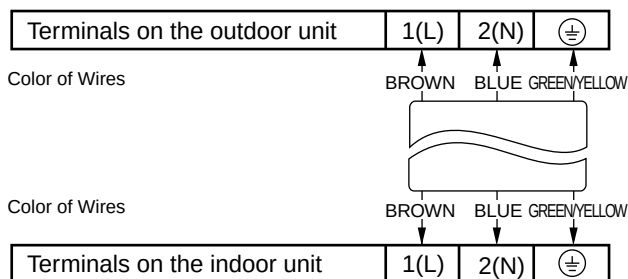


2) Connecting of the cable to the indoor unit

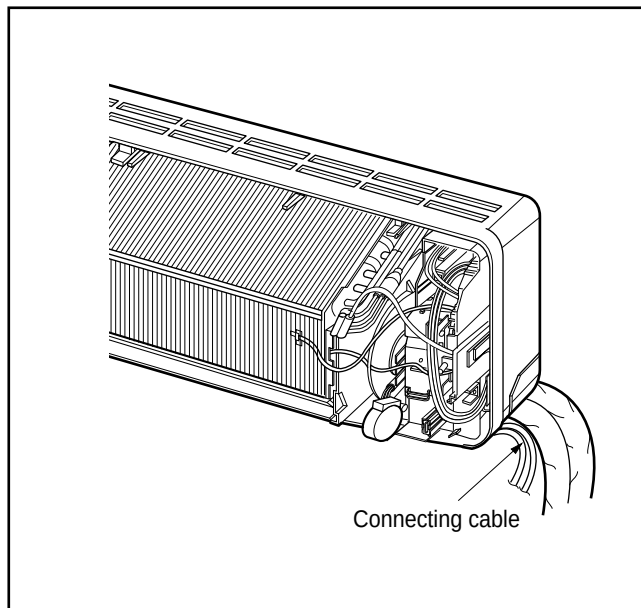
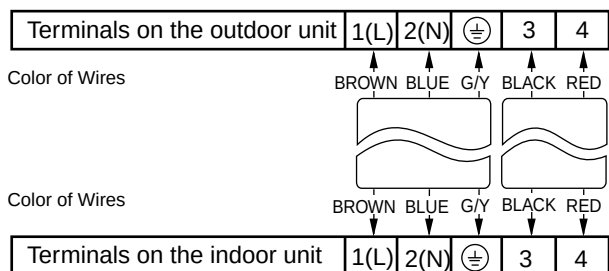
1. Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as the indoor unit.

1) Cooling only type

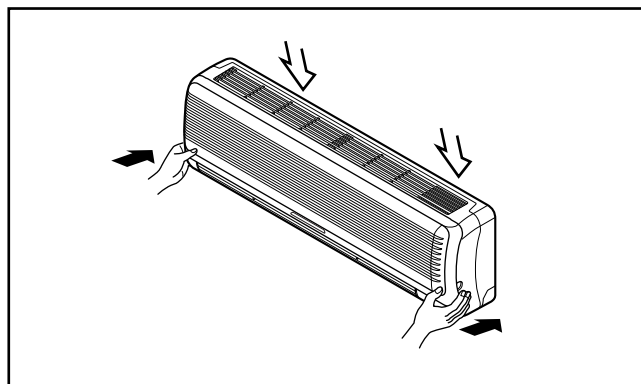


2) Cooling & Heating type



2. Attach the Grille onto the cabinet.

- Grasp lower the left and the right side of the Grille and engage two tabs on the top inside edge of the grille with two slots on the cabinet's top front edge.
- Press the Grille toward to the cabinet until it will be back into place.



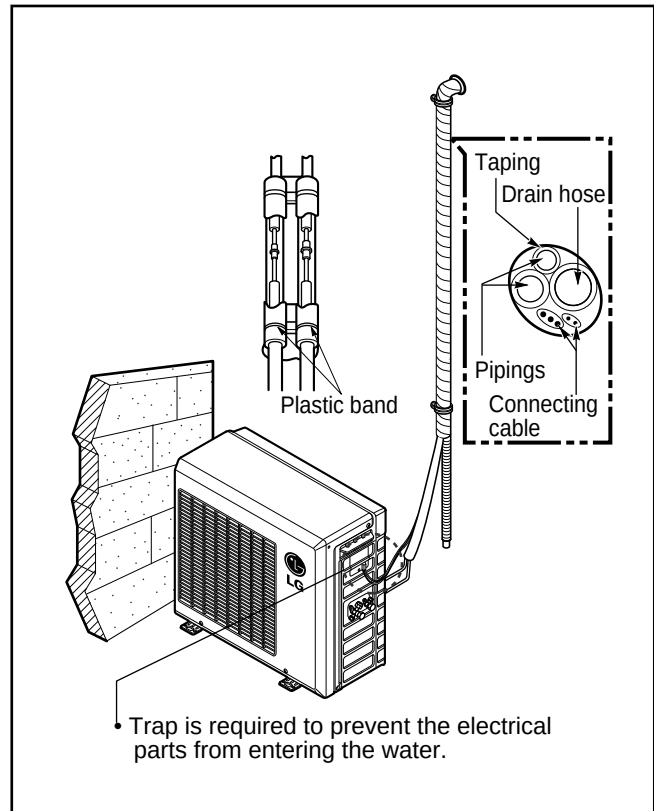
3) Form the piping

1. Wrap the connecting portion of indoor unit with the Insulation material and secure it with two Plastic Bands.(for the right piping)

- If you want to connect an additional drain hose, the end of the drain-outlet should be off the ground.(Do not dip it into water, and fix it on the wall to avoid swinging in the wind.)

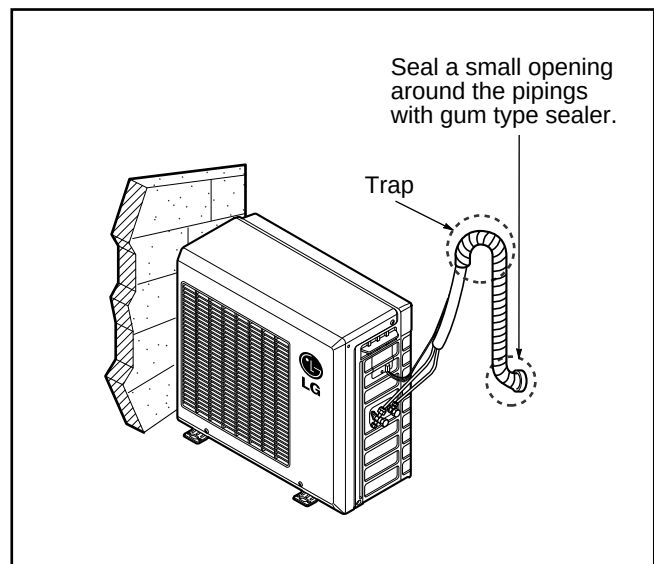
In case of the Outdoor unit to be installed below the position of the Indoor unit.

2. Tape the Piping, drain hose and Connecting Cable from down to up.
3. Form the piping gathered by taping along the exterior wall and fix it onto the wall by saddle or equivalent.



In case of the Outdoor unit being installed upper position of the Indoor unit.

2. Tape the Piping and Connecting cable from down to up.
3. Form the pipings gathered by taping along the exterior wall, make the Trap to be required to prevent the room from entering the water.
4. Fix the pipings onto the wall by saddle or equivalent.



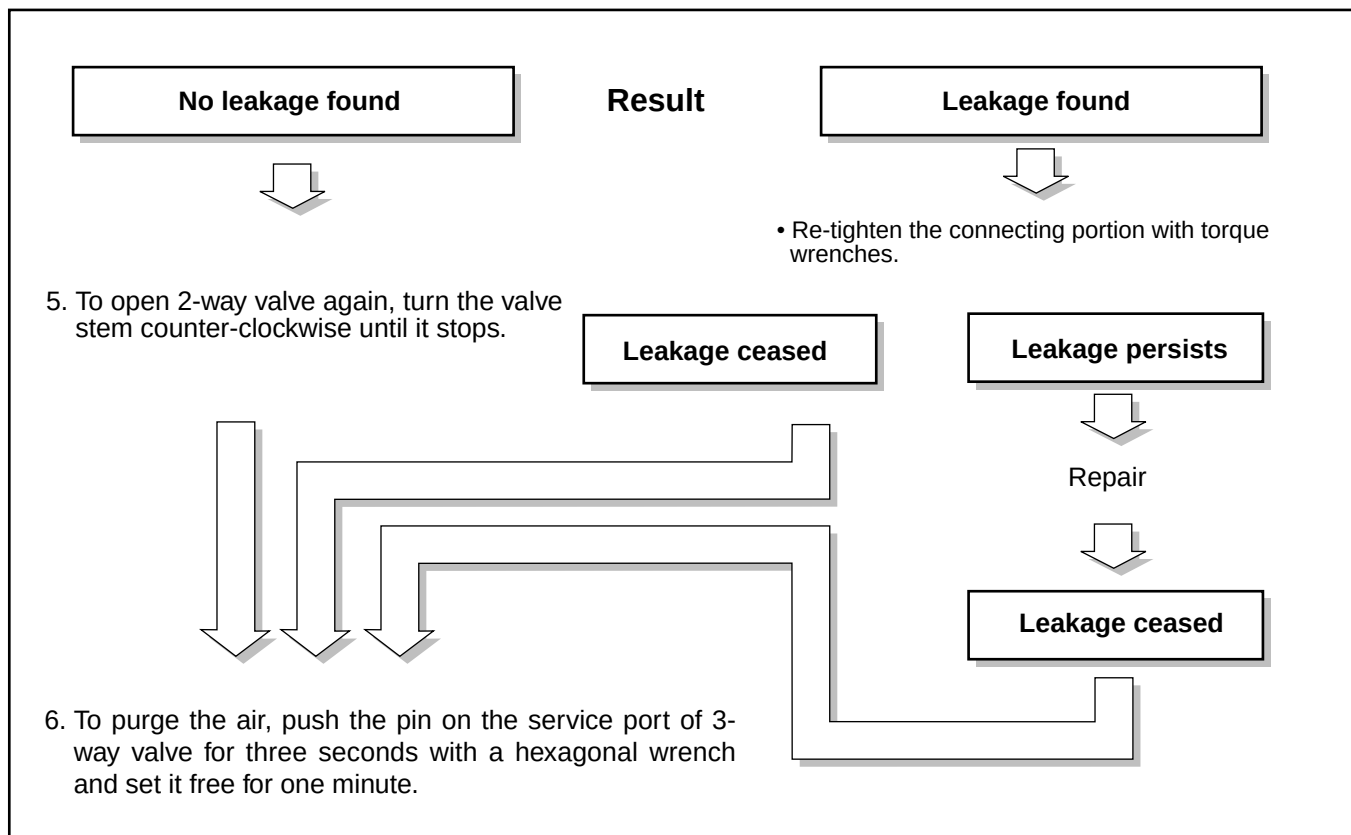
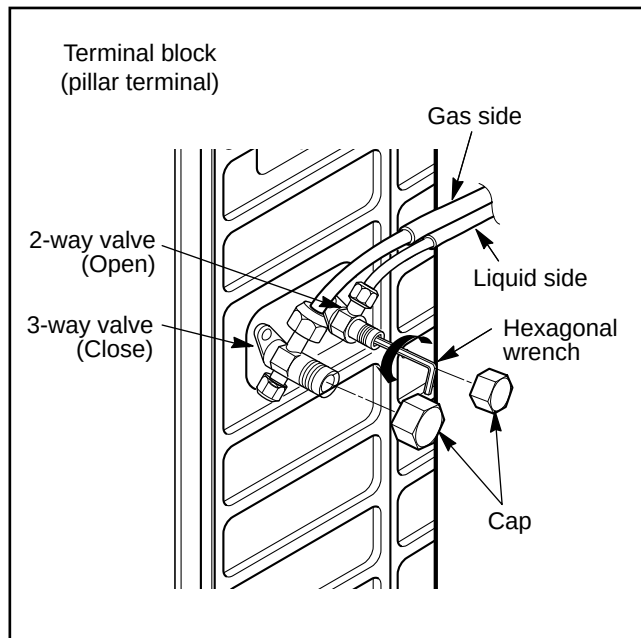
5. Air Purging of the Piping and Indoor Unit

1) Air purging

The air remaining which contains moisture in the refrigeration cycle may cause a malfunction on the compressor.

1. Remove the caps from the 2-way and 3-way valves.
2. Remove the service-port cap from the 3-way valve.
3. To open the valve, turn the valve stem of 2-way valve counter-clockwise approx. 90° and hold it there for five seconds, then close it.
4. Check a gas-leakage of the connecting portion of the pipings.

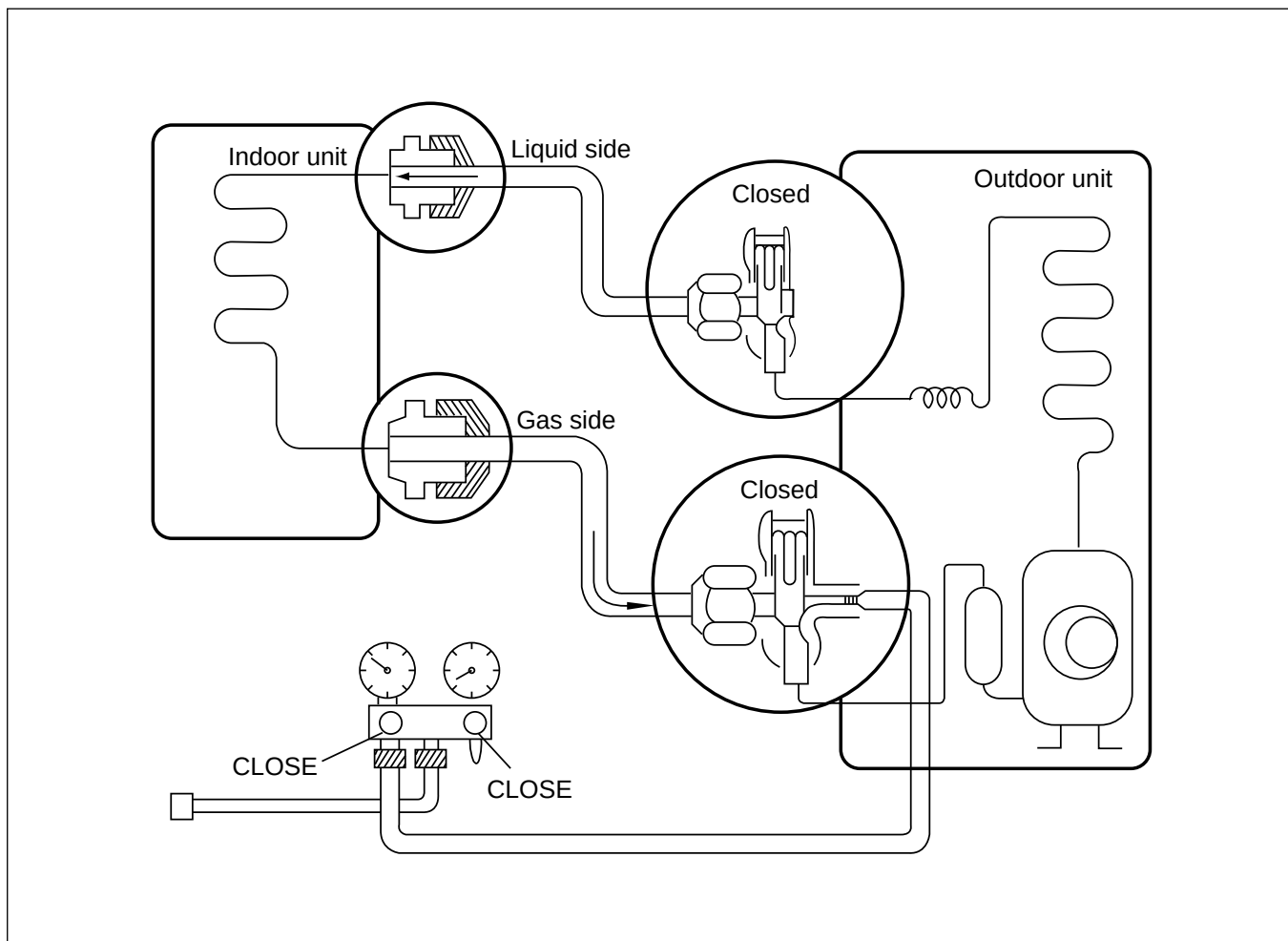
CAUTION: Do not leak the gas in the air during air purging, with vacuum pump as possible as you can.



7. Set both liquid and gas side valves to open position with the Hexagonal wrench for the unit operation.

8. Checking a gas leakage

- (1) Connect the manifold gauge to the service port of 3-way valve.
Measure the pressure.
- (2) Keep it for 5-10 minutes.
Ensure if the pressure indicated on the gauge is as same as that of measured at first time.



NOTE:

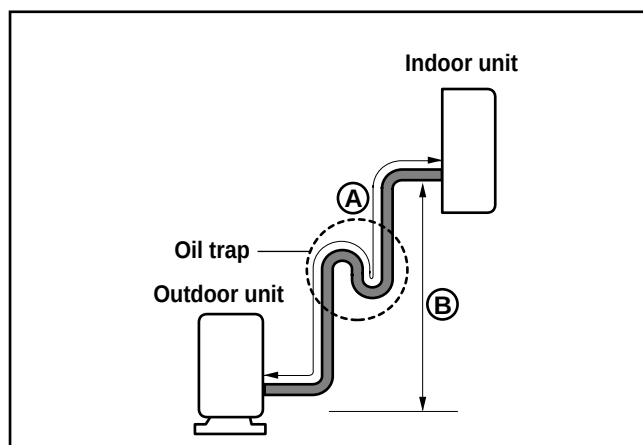
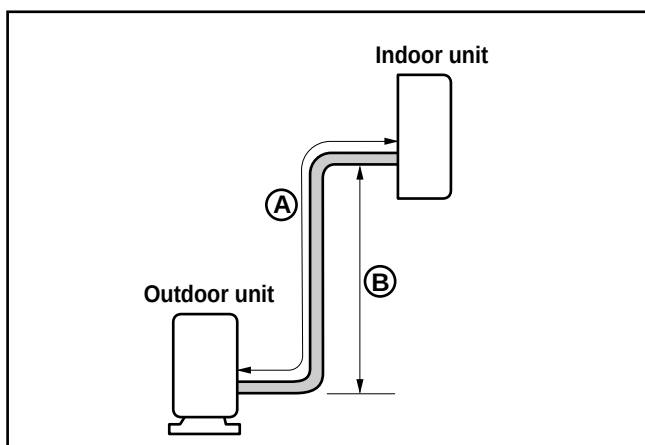
The additional gas for air purging has been charged in the outdoor unit.

However, if the flare connections have not been done correctly and there gas leaks, a gas cylinder and the charge set will be needed.

CAUTION : Do not leak the gas in the air during air purging. Use vaccum pump as far as possible

6. Pipe length and the elevation

Capacity (Btu/h)	Max. Piping Length £ (m)	Max. Elevation £ (m)	Standard Length(m)	Additional Refriger- erant (g/m)
7~12K	15	7	5	20



In case more than 5m

CAUTION

- Capacity is based on standard length and maximum allowance length is the basis of reliability.
- **Oil trap should be installed per 5~7 meters.**
- Numerical value in "()" is for Rotary Comp. model.

7. Test running

1) Connection of power supply

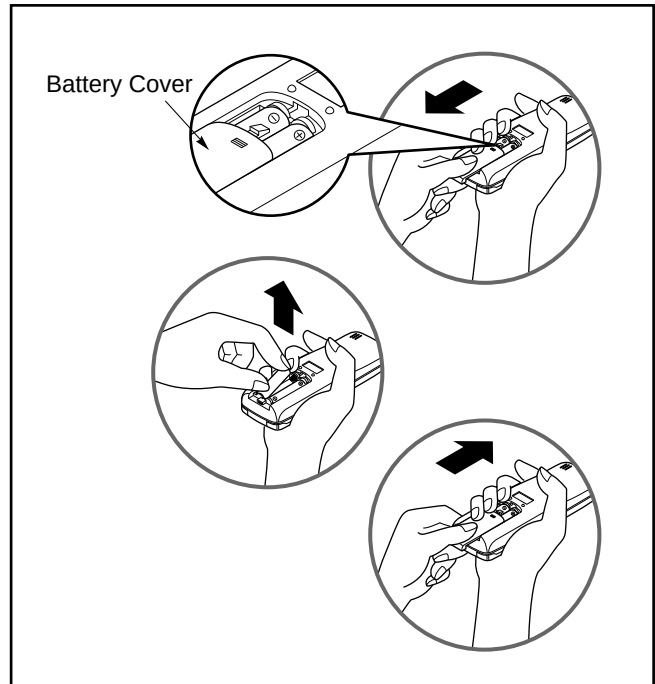
1. Connect the power supply cord to the independent power supply.

- Circuitbreaker is required.

2. Prepare the remote controller.

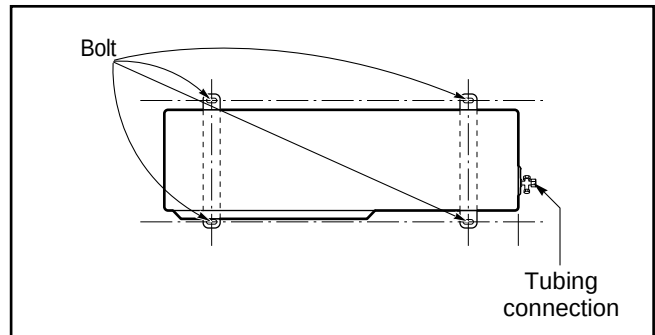
- Insert two batteries provided.
Remove the battery cover from the remote controller.
- Slide the cover according to the arrow direction.
Insert two batteries.
(Two "R03" or "AAA" dry-cell batteries or equivalent.)
- Be sure that the (+) and (-) directions are correct.
- Be sure that both batteries are new.
Re-attach the cover.
- Slide it back into position.

3. Operate the unit for fifteen minutes or more.



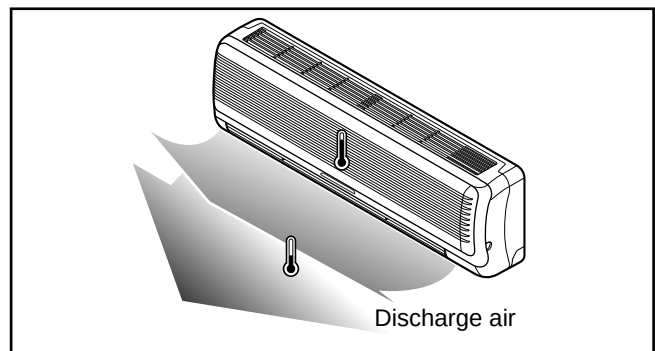
Settlement of Outdoor Unit

- Anchor the outdoor unit with a bolt and nut ($\varnothing 10\text{cm}$) tightly and horizontally on a concrete or rigid mount.
- When installing on the wall, roof or rooftop, anchor the mounting base securely with a nail or wire assuming the influence of wind and earthquake.
- In the case when the vibration of the unit is conveyed to the house, settle the unit with an anti-vibration rubber.



2) Evaluation of the performance

1. Measure the temperature of the intake and discharge air.
2. Ensure the difference between the intake temperature and the discharge one is more than 8 °C (Cooling) or reversely (Heating).



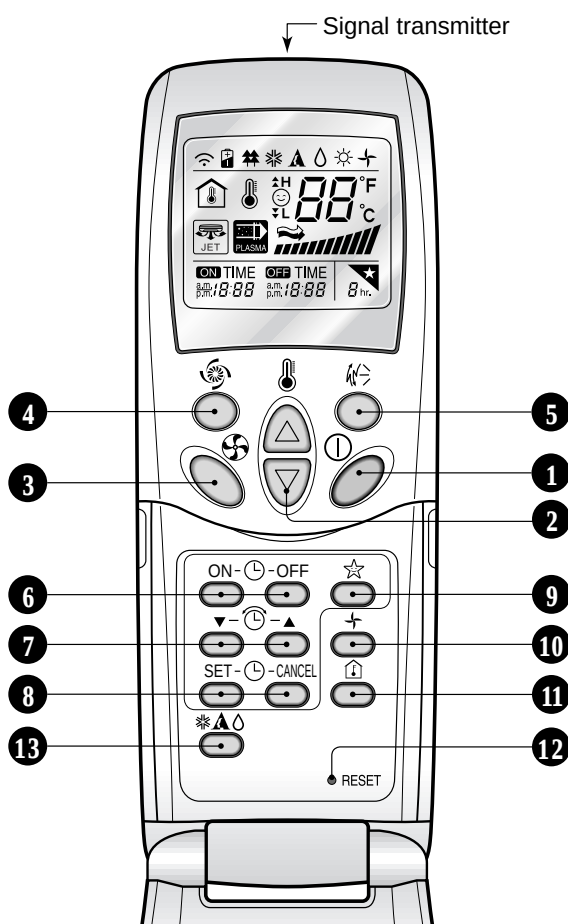
Operation

(1) Name and Function-Remote Control (Cooling Models)

Remote Control

Signal transmitter

Transmits the signals
to the room air conditioner.



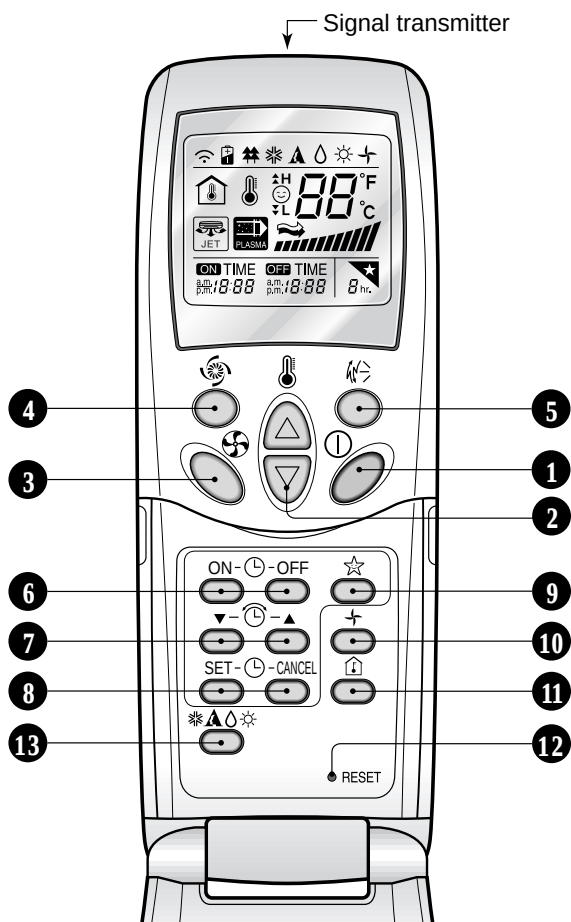
- 1 START/STOP BUTTON**
Operation starts when this button is pressed and stops when the button is pressed again.
- 2 ROOM TEMPERATURE SETTING BUTTONS**
Used to select the room temperature.
- 3 INDOOR FAN SPEED SELECTOR**
Used to select fan speed in four steps low, medium, high, or CHAOS.
- 4 JET COOL**
Used to start or stop the speed cooling. (Speed cooling operates super high fan speed in cooling mode.)
- 5 CHAOS SWING BUTTON**
Used to stop or start louver movement and set the desired up/down airflow direction.
- 6 ON/OFF TIMER BUTTONS**
Used to set the time of starting and stopping operation.
- 7 TIME SETTING BUTTONS**
Used to adjust the time.
- 8 TIMER SET/CANCEL BUTTONS**
Used to set the timer when the desired time is obtained and to cancel the Timer operation.
- 9 SLEEP MODE AUTO BUTTON**
Used to set Sleep Mode Auto operation.
- 10 AIR CIRCULATION BUTTON**
Used to circulate the room air without cooling or heating (turns indoor fan on/off).
- 11 ROOM TEMPERATURE CHECKING BUTTON**
Used to check the room temperature.
- 12 RESET BUTTON**
Used prior to resetting time or after replacing batteries.
- 13 OPERATION MODE SELECTION BUTTON**
Used to select the operation mode.

(2) Name and Function-Remote Control (Heat Pump Models)

Remote Control

Signal transmitter

Transmits the signals to the room air conditioner.



- 1 START/STOP BUTTON**
Operation starts when this button is pressed and stops when the button is pressed again.
- 2 ROOM TEMPERATURE SETTING BUTTONS**
Used to select the room temperature.
- 3 INDOOR FAN SPEED SELECTOR**
Used to select fan speed in four steps: low, medium, high, or CHAOS.
- 4 JET COOL**
Used to start or stop the speed cooling. (Speed cooling operates super high fan speed in cooling mode.)
- 5 CHAOS SWING BUTTON**
Used to stop or start louver movement and set the desired up/down airflow direction.
- 6 ON/OFF TIMER BUTTONS**
Used to set the time of starting and stopping operation.
- 7 TIME SETTING BUTTONS**
Used to adjust the time.
- 8 TIMER SET/CANCEL BUTTONS**
Used to set the timer when the desired time is obtained and to cancel the Timer operation.
- 9 SLEEP MODE AUTO BUTTON**
Used to set Sleep Mode Auto operation.
- 10 AIR CIRCULATION BUTTON**
Used to circulate the room air without cooling or heating (turns indoor fan on/off).
- 11 ROOM TEMPERATURE CHECKING BUTTON**
Used to check the room temperature.
- 12 RESET BUTTON**
Used prior to resetting time or after replacing batteries.
- 13 OPERATION MODE SELECTION BUTTON**
Used to select the operation mode.

Disassembly of the parts (Indoor unit)

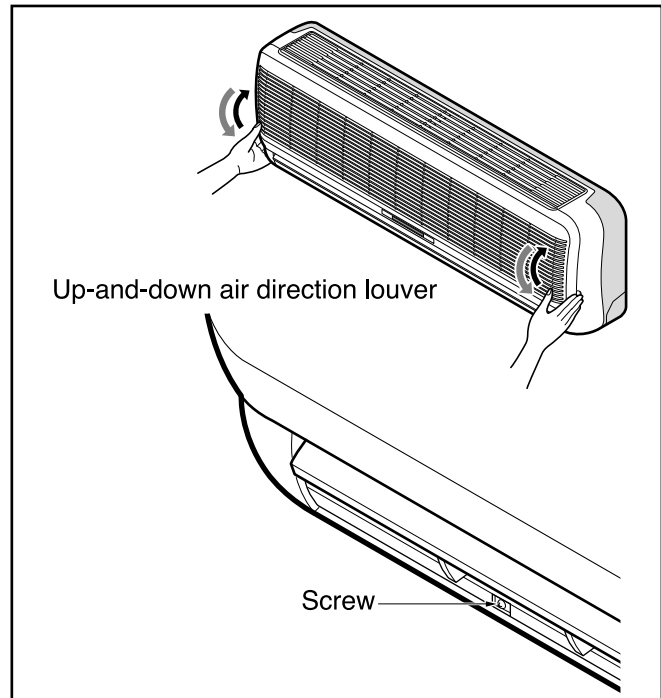
Warning :

Disconnect the unit from power supply before making any checks.

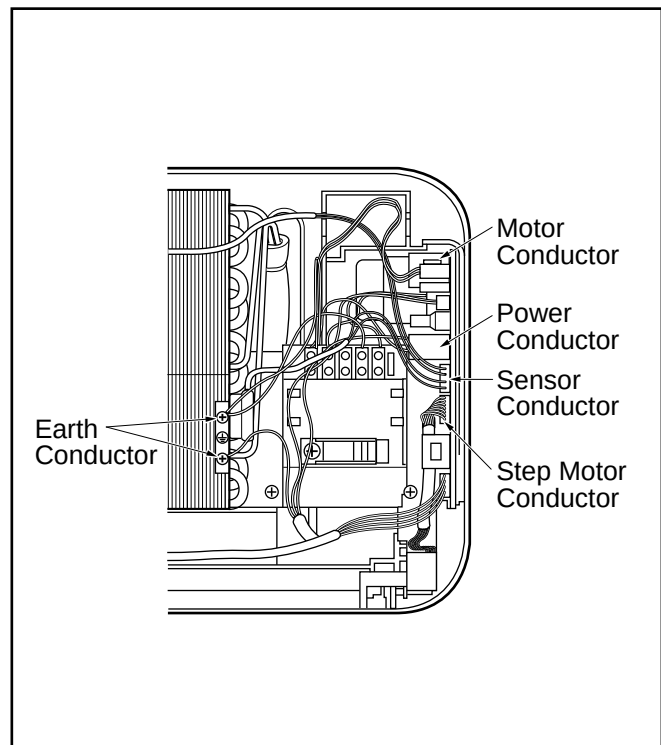
Be sure the power switch is set to "OFF".

To remove the Grille from the Chassis.

- Set the up-and-down air discharge louver to open position (horizontally) by finger pressure.
- Remove the securing screws (9K Btu models: 2EA).
- To remove the Grille, pull the lower left and right side of the grille toward you (slightly tilted) and lift it straight upward.

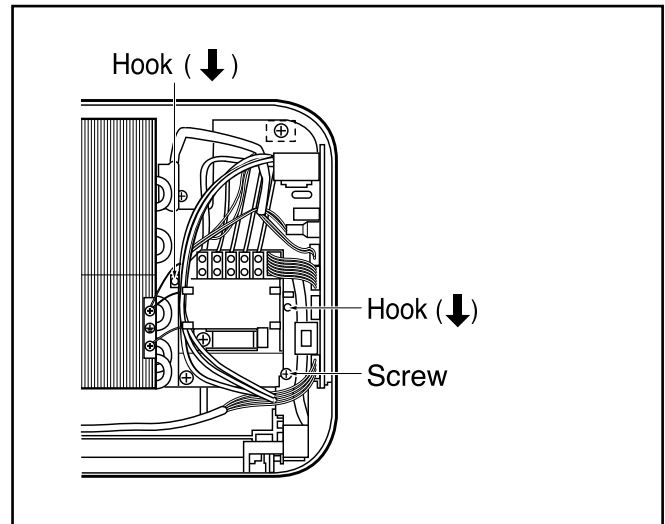


1. To remove the sensor, housing connect, earth conductor & step motor conductor with sensor holder, Motor, Evaporator & P.C.B.



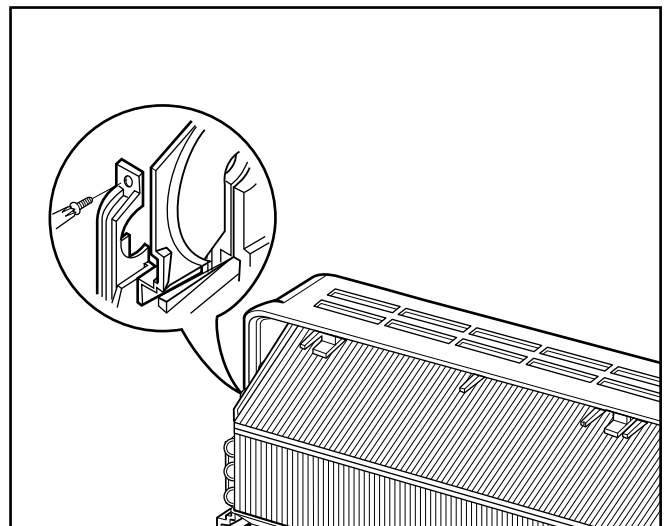
2. To remove the Control Box.

- Remove 2 securing screws.
- Pull the control box out from the chassis carefully.



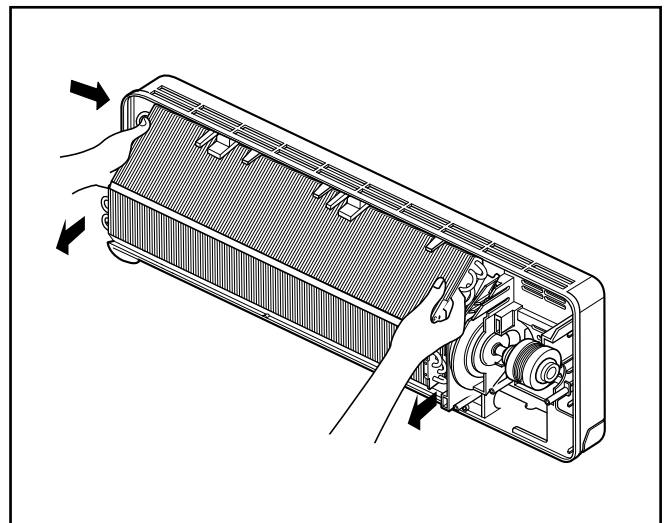
3. To remove the Discharge Grille.

- Remove the securing screw.
- Pressing the right side of the discharge grille downward slightly, unhook the discharge grille.
- Pull the discharge grille out from the chassis carefully.
- Unhook the left side of the discharge grille and pull the discharge grille out from the chassis carefully.

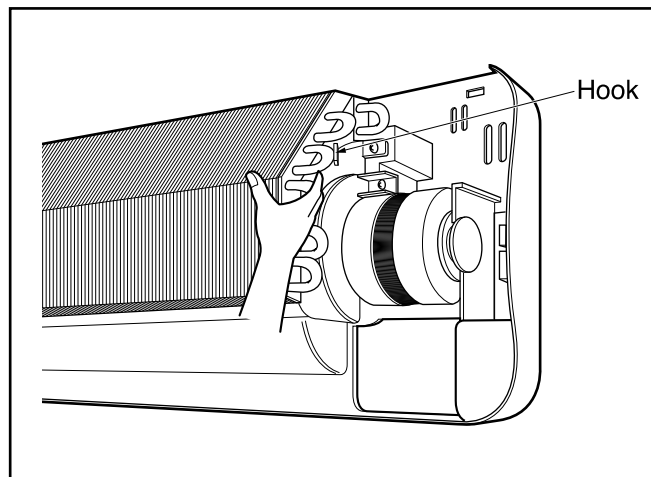


4. To remove the Evaporator.

- Remove 3 screws securing the evaporator(at the left 2EA in the Eva Holder, at the right 1EA).

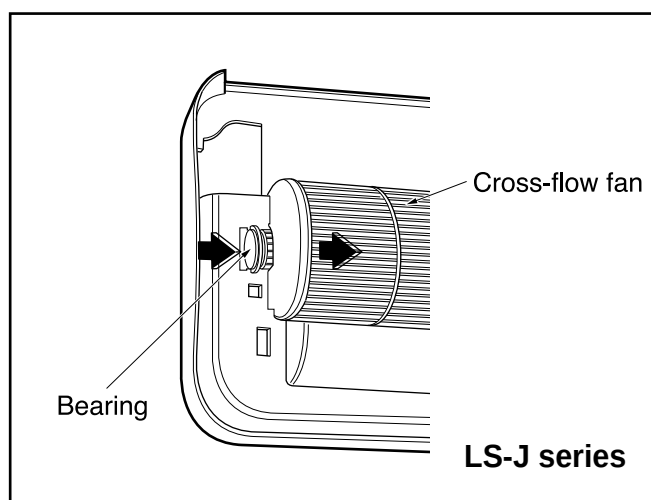
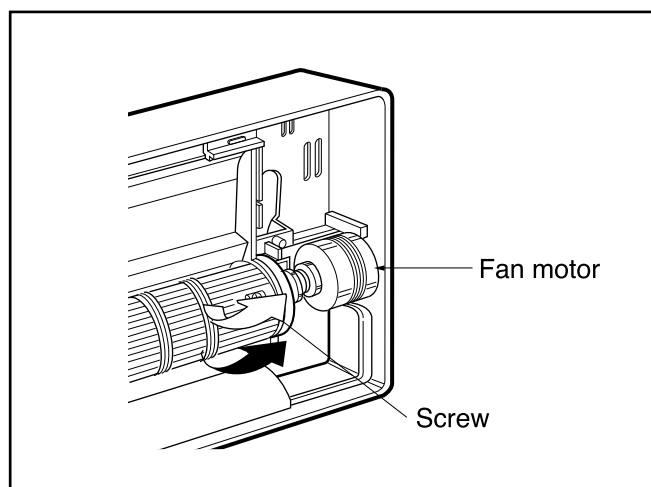


- Unhook the tab on the right inside of the chassis at the same time, slightly pull the evaporator toward you until the tab is clear of the slot.

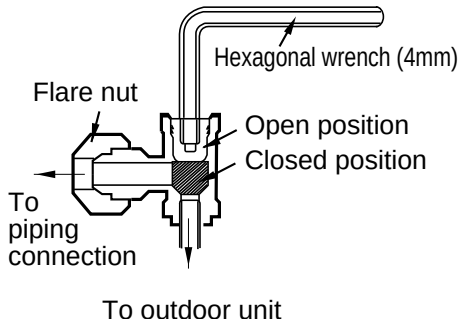
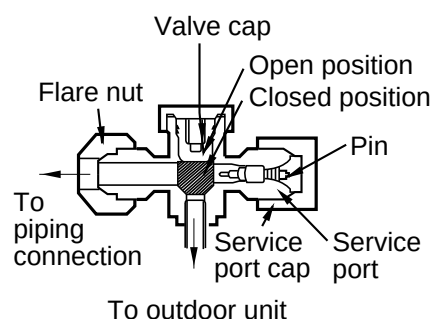


5. To remove the Cross-Flow Fan

- Loosen the screw securing the cross-flow fan to the fan motor (do not remove).
- Lift up the right side of the cross-flow fan and the fan motor, separate the fan motor from the cross-flow fan.
- Remove the left end of the cross-flow fan from the self-aligning bearing.



2-way, 3-way Valve

		2-way Valve (Liquid Side)	3-way Valve (Gas Side)	
				
Works		Shaft position	Shaft position	Service port
Shipping		Closed (with valve cap)	Closed (with valve cap)	Closed (with cap)
1.	Air purging (Installation)	Open (counter-clockwise)	Closed (clockwise)	Open (push-pin or with vacuum pump)
Operation		Open (with valve cap)	Open (with valve cap)	Closed (with cap)
2.	Pumping down (Transferring)	Closed (clockwise)	Open (counter-clockwise)	Open (connected manifold gauge)
3.	Evacuation (Servicing)	Open	Open	Open (with charging cylinder)
4.	Gas charging (Servicing)	Open	Open	Open (with charging cylinder)
5.	Pressure check (Servicing)	Open	Open	Open (with charging cylinder)
6.	Gas releasing (Servicing)	Open	Open	Open (with charging cylinder)

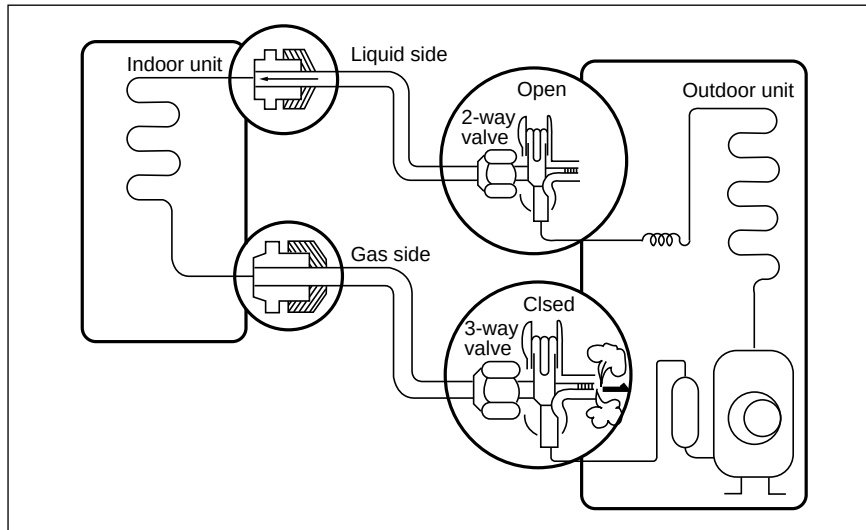
1. Air purging

Required tools : hexagonal wrench, adjustable wrench, torque wrenches, wrench to hold the joints, and gas leak detector.

The additional gas for air purging has been charged in the outdoor unit.

However, if the flare connections have not be done correctly and there gas leaks, a gas cylinder and the charge set will be needed.

The air in the indoor unit and in the piping must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling capacity, and could lead to a malfunction.



Service port nut:

Be sure, using a torque wrench to tighten the service port nut (after using the service port), so that it prevents the gas leakage from the refrigeration cycle.

*** CAUTION : Do not leak the gas in the air during Air purging.**

• Procedure

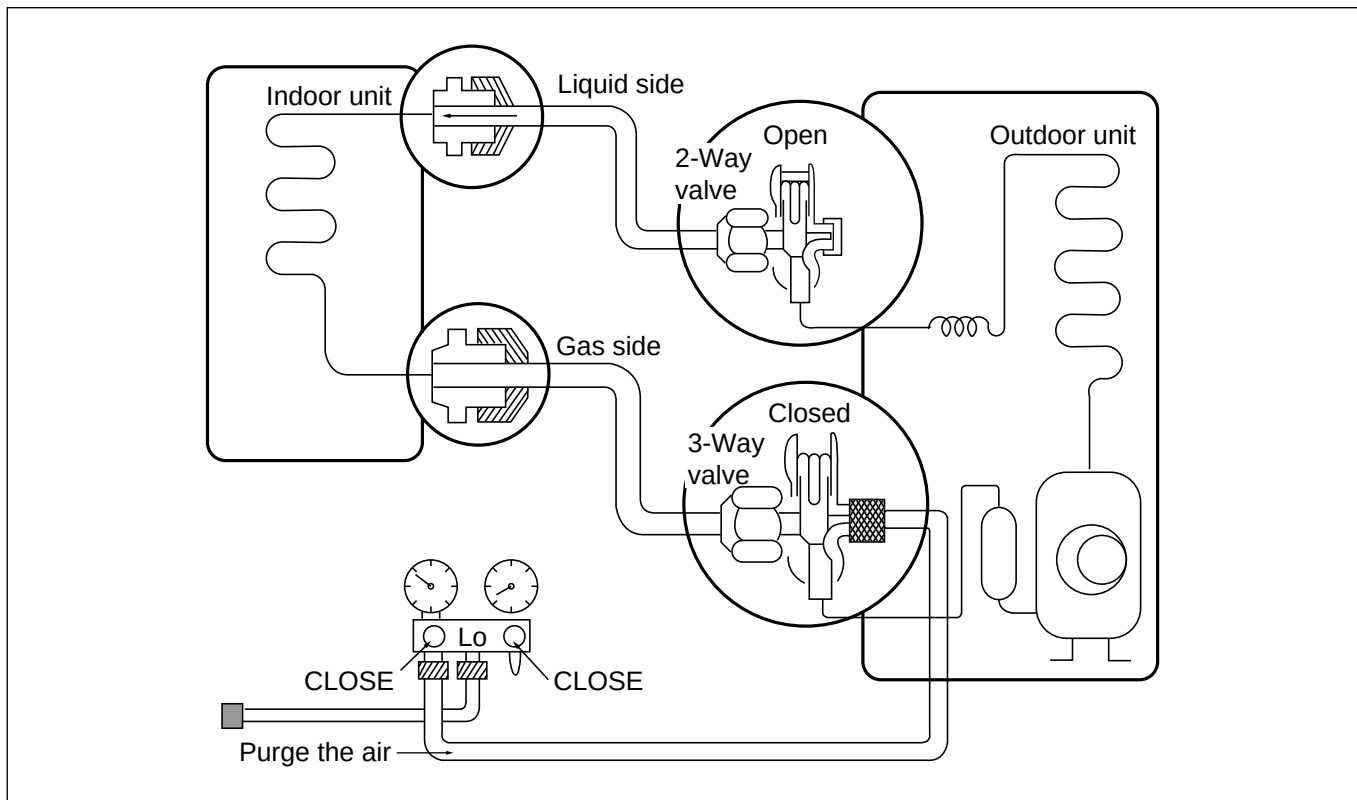
- (1) Recheck the piping connections.
- (2) Open the valve stem of the 2-way valve counterclockwise approximately 90°, wait 10 seconds, and then set it to closed position.
 - Be sure to use a hexagonal wrench to operate the valve stem.
- (3) Check for gas leakage.
 - Check the flare connections for gas leakage.
- (4) Purge the air from the system.
 - Set the 2-way valve to the open position and remove the cap from the 3-way valve's service port.
 - Using the hexagonal wrench to press the valve core pin, discharge for three seconds and then wait for one minute. Repeat this three times.
- (5) Use torque wrench to tighten the service port nut to a torque of 1.8kg.cm.
- (6) Set the 3-way valve to the back seat.
- (7) Mount the valve stem nuts to the 2-way and 3-way valves.
- (8) Check for gas leakage.
 - At this time, especially check for gas leakage from the 2-way and 3-way valve's stem nuts, and from the service port nut.

Caution

If gas leakage are discovered in step (3) above, take the following mesures :

If the gas leaks stop when the piping connections are tightened further, continue working from step (4). If the gas leaks do not stop when the connections are retightened, repair the location of the leak, discharge all of the gas through the service port, and then recharge with the specified amount of gas from a gas cylinder.

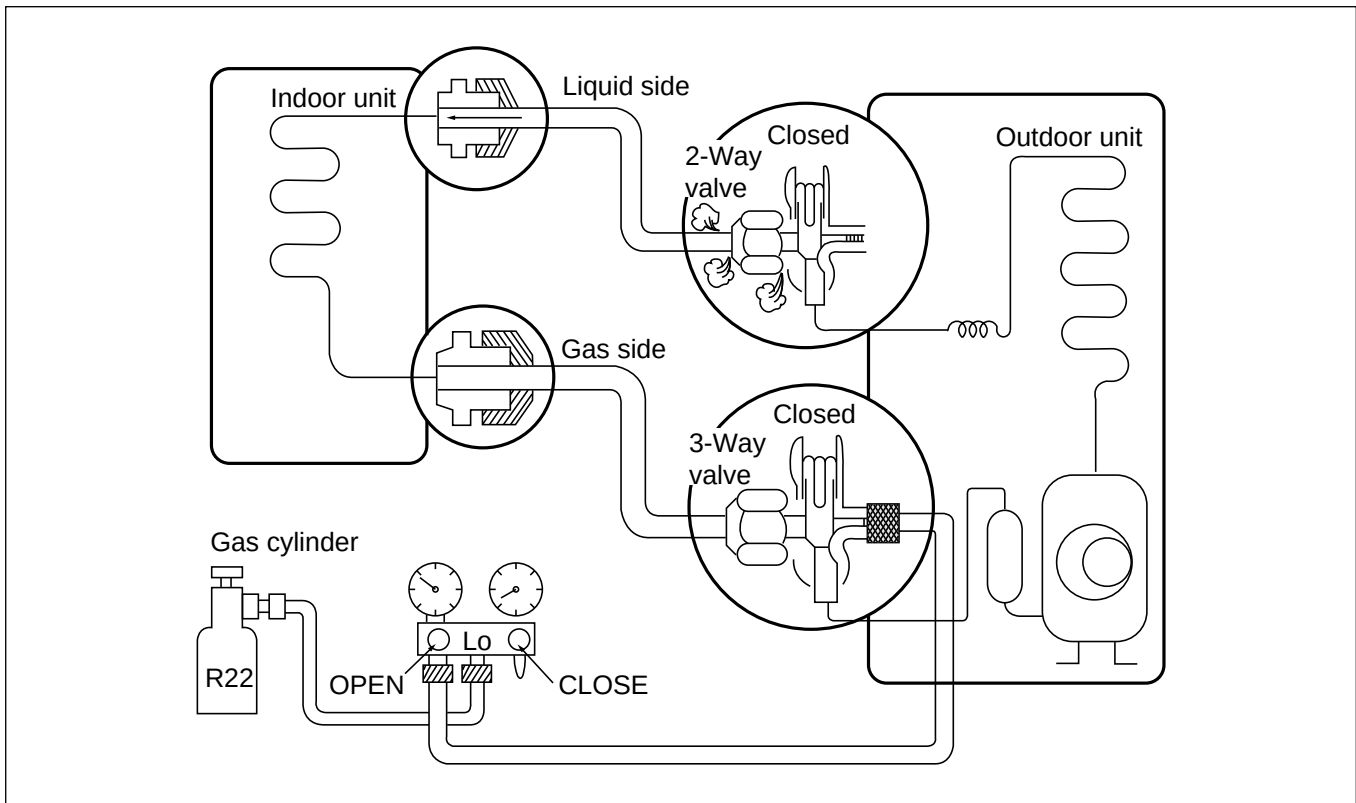
2. Pumping down



• Procedure

- (1) **Confirm that both the 2-way and 3-way valves are set to the open position.**
 - Remove the valve stem caps and confirm that the valve stems are in the raised position.
 - Be sure to use a hexagonal wrench to operate the valve stems.
- (2) **Operate the unit for 10 to 15 minutes.**
- (3) **Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.**
 - Connect the charge hose with the push pin to the service port.
- (4) **Air purging of the charge hose.**
 - Open the low-pressure valve on the charge set slightly to air purge from the charge hose.
- (5) **Set the 2-way valve to the closed position.**
- (6) **Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 1kg/cm²g.**
- (7) **Immediately set the 3-way valve to the closed position.**
 - Do this quickly so that the gauge ends up indicating 3 to 5kg/cm²g.
- (8) **Disconnect the charge set, and mount the 2-way and 3-way valve's stem nuts and the service port nut.**
 - Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m.
 - Be sure to check for gas leakage.

1) Re-air purging (Re-installation)



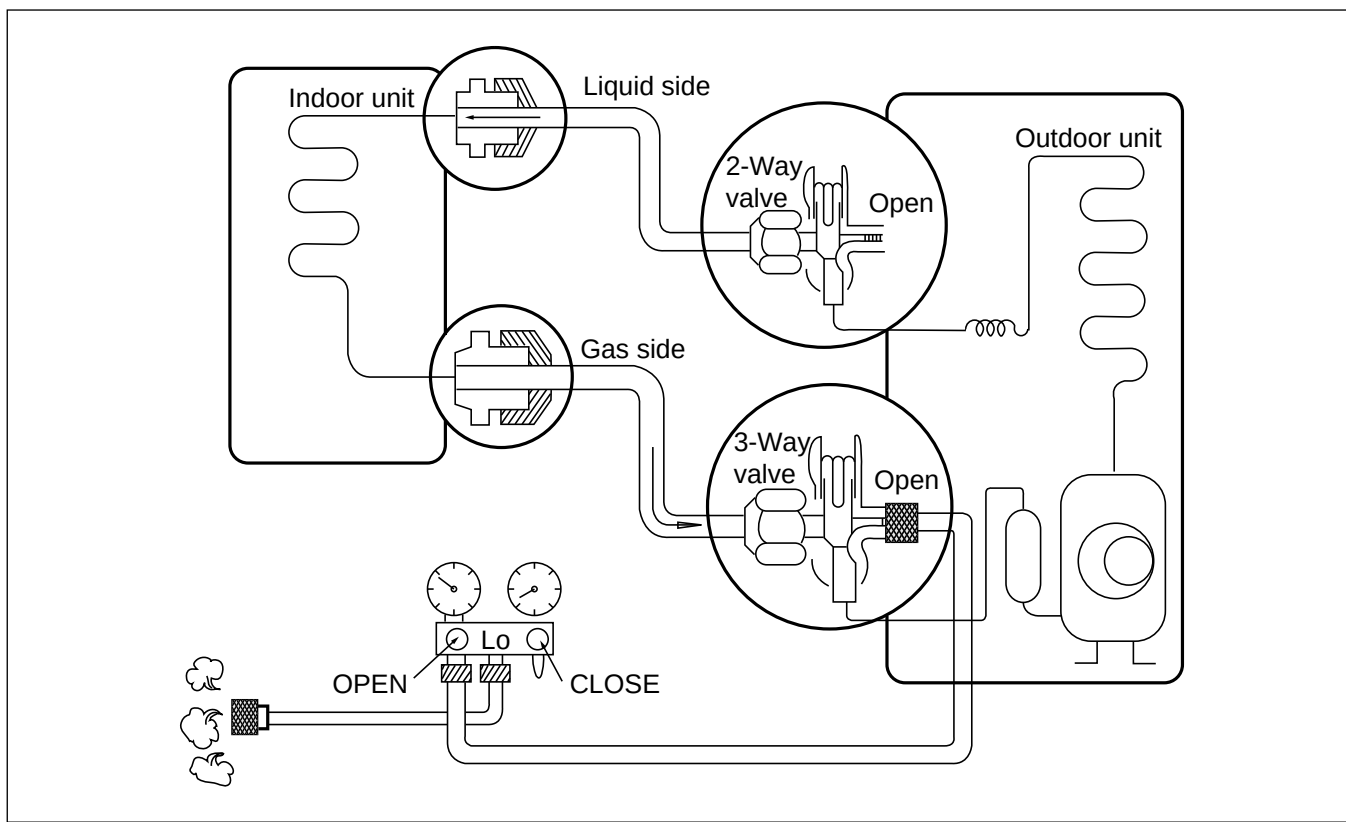
• Procedure

- (1) Confirm that both the 2-way valve and the 3-way valve are set to the closed position.
- (2) Connect the charge set and a gas cylinder to the service port of the 3-way valve.
 - Leave the valve on the gas cylinder closed.
- (3) Air purging.
 - Open the valves on the gas cylinder and the charge set. Purge the air by loosening the flare nut on the 2-way valve approximately 45° for 3 seconds then closing it for 1 minute; repeat 3 times.
 - After purging the air, use a torque wrench to tighten the flare nut on the 2-way valve.
- (4) Check for gas leakage.
 - Check the flare connections for gas leakage.
- (5) Discharge the refrigerant.
 - Close the valve on the gas cylinder and discharge the refrigerant until the gauge indicates 3 to 5 kg/cm²g.
- (6) Disconnect the charge set and the gas cylinder, and set the 2-way and 3-way valves to the open position.
 - Be sure to use a hexagonal wrench to operate the valve stems.
- (7) Mount the valve stem nuts and the service port nut.
 - Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m.
 - Be sure to check for gas leakage.

*** CAUTION:**
Do not leak the gas in the air during Air Purging.

2) Balance refrigerant of the 2-way, 3-way valves

(Gas leakage)



• Procedure

(1) Confirm that both the 2-way and 3-way valves are set to the back seat.

(2) Connect the charge set to the 3-way valve's port.

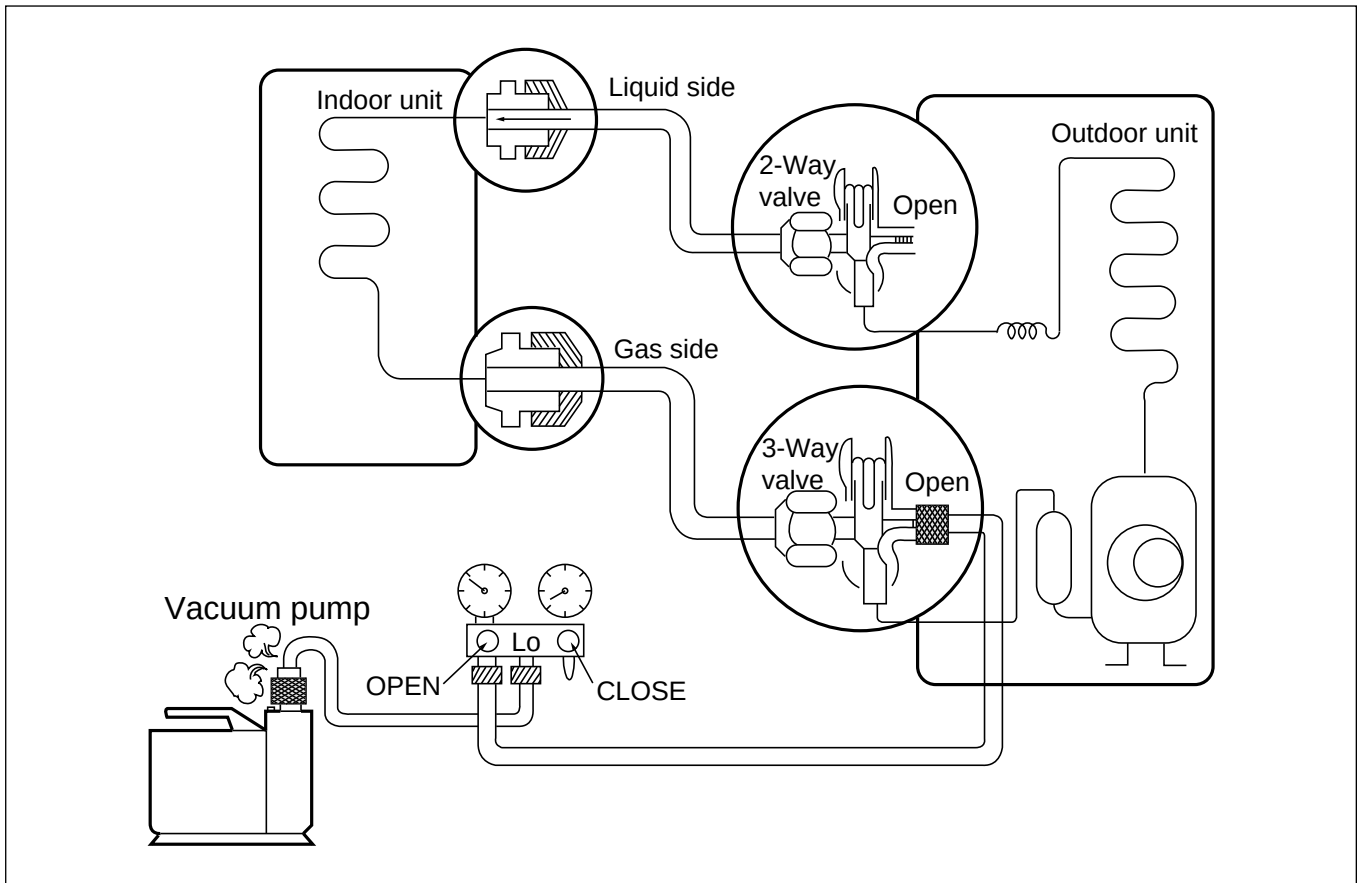
- Leave the valve on the charge set closed.
- Connect the charge hose with the push pin to the service port.

(3) Open the valve (Lo side) on the charge set and discharge the refrigerant until the gauge indicates 0 kg/cm²G.

- If there is no air in the refrigerant cycle (the pressure when the air conditioner is not running is higher than 1 kg/cm²G), discharge the refrigerant until the gauge indicates 0.5 to 1 kg/cm²G. if this is the case, it will not be necessary to apply a evacuation.
- Discharge the refrigerant gradually; if it is discharged too suddenly, the refrigeration oil will also be discharged.

3. Evacuation

(All amount of refrigerant leaked)

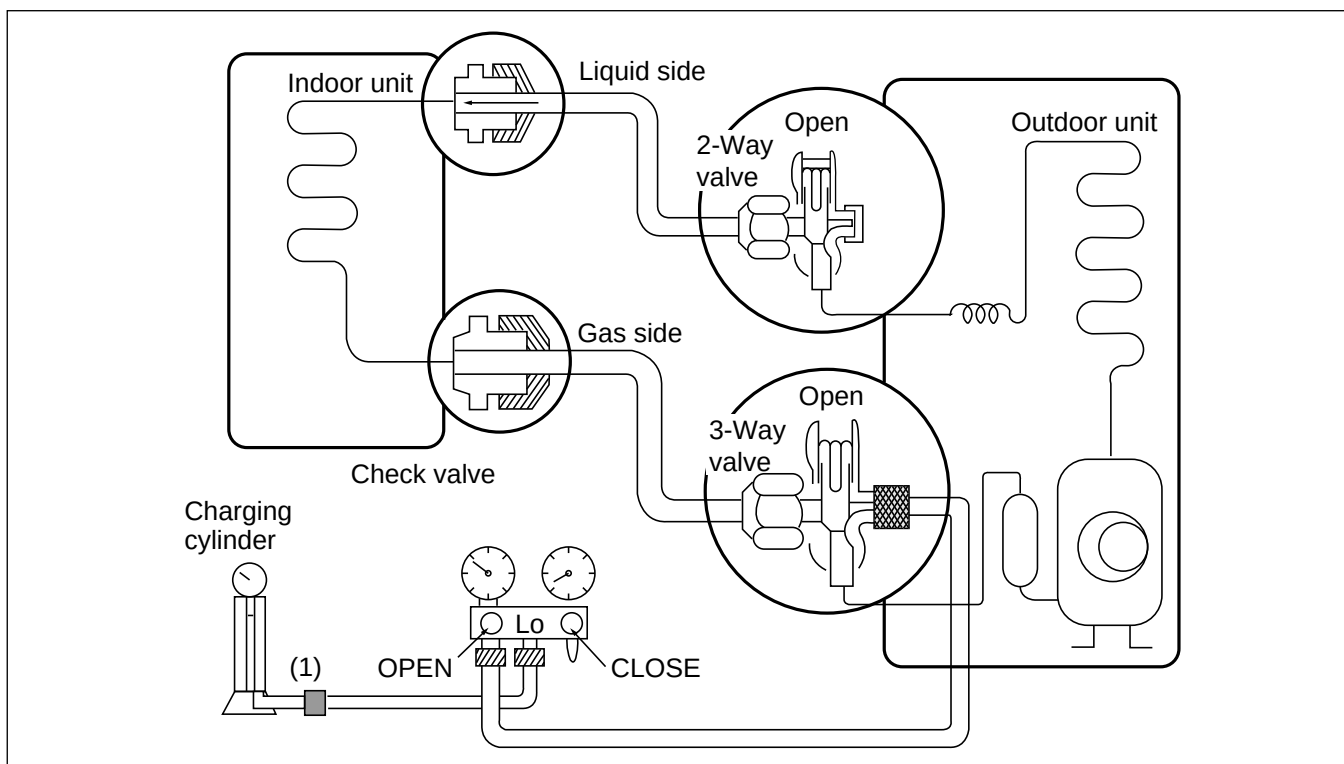


• Procedure

- (1) Connect the vacuum pump to the charge set's center hose
- (2) Evacuation for approximately one hour.
 - Confirm that the gauge needle has moved toward -76 cmHg (vacuum of 4 mmHg or less).
- (3) Close the valve (Lo side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
- (4) Disconnect the charge hose from the vacuum pump.
 - Vacuum pump oil.
 - If the vacuum pump oil becomes dirty or depleted, replenish as needed.

4. Gas Charging

(After Evacuation)



• Procedure

(1) Connect the charge hose to the charging cylinder.

- Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.
- If you are using a gas cylinder, also use a scale and reverse the cylinder so that the system can be charged with liquid.

(2) Purge the air from the charge hose.

- Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air. (Be careful of the liquid refrigerant). The procedure is the same if using a gas cylinder.

(3) Open the valve (Lo side on the charge set and charge the system with liquid refrigerant.

- If the system can not be charged with the specified amount of refrigerant, it can be charged with a little at a time (approximately 150g each time) while operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure (pumping down-pin).

This is different from previous procedures.

Because you are charging with liquid refrigerant from the gas side, absolutely do not attempt to charge with larger amounts of liquid refrigerant while operating the air conditioner.

(4) Immediately disconnect the charge hose from the 3-way valve's service port.

- Stopping partway will allow the gas to be discharged.
- If the system has been charged with liquid refrigerant while operating the air conditioner turn off the air conditioner before disconnecting the hose.

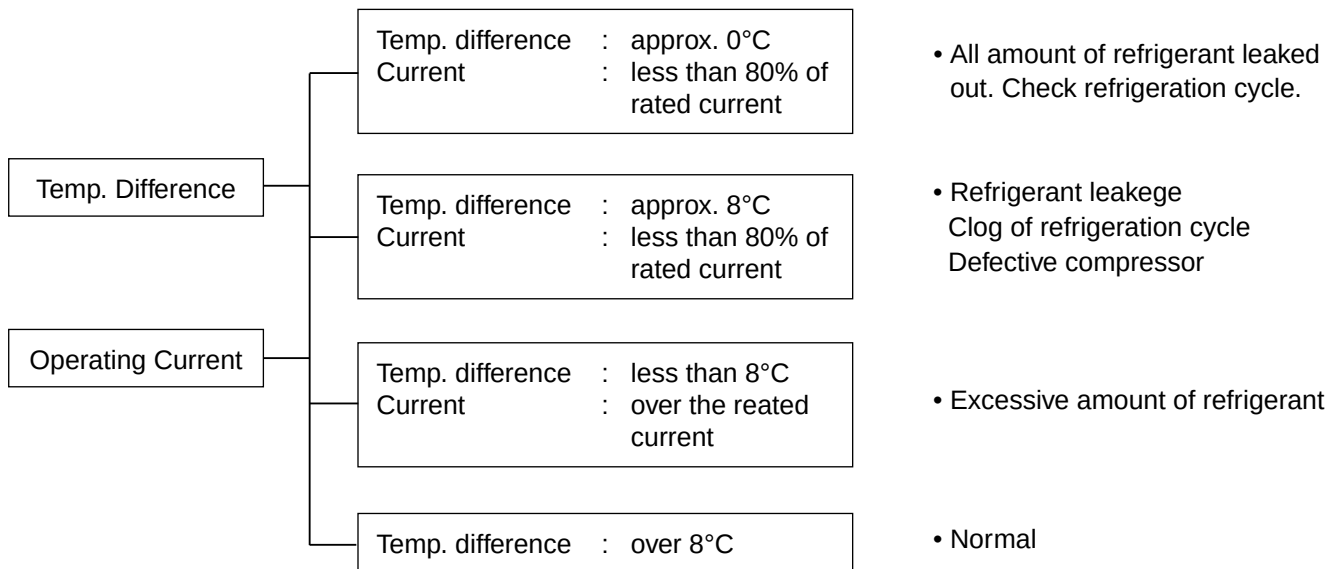
(5) Mount the valve stem nuts and the service port nut.

- Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m.
- Be sure to check for gas leakage.

Cycle Troubleshooting Guide

Trouble analysis

1. Check temperature difference between intake and discharge air and operating current.



Notice :

Temperature difference between intake and discharge air depends on room air humidity. When the room air humidity is relatively higher, temperature difference is smaller. When the room air humidity is relatively lower temperature difference is larger.

2. Check temperature and pressure of refrigeration cycle.

Suction pressure (Compared with the normal value)	Temperature (Compared with the normal value)	Cause of Trouble	Description
Higher	High	Defective compressor Defective 4-way reverse valve	Current is low.
	Normal	Excessive amount of refrigerant	High pressure does not quickly rise at the beginning of operation.
Lower	Higher	Insufficient amount of refrigerant (Leakage) Clogging	Current is low. Current is low.

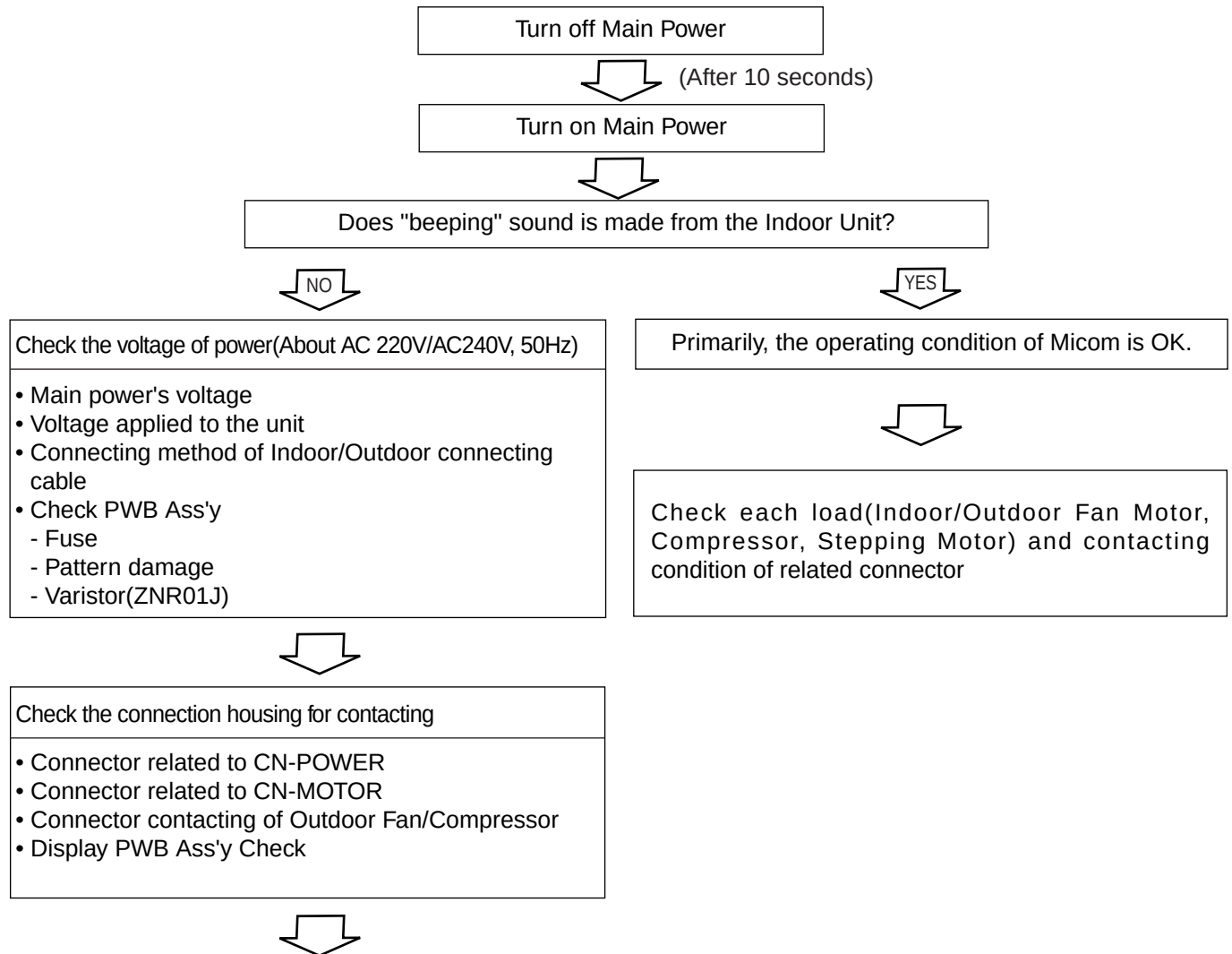
Notice :

1. The suction pressure is usually 4.5~6.0 kg/cm²G(Cooling) at normal condition.
2. The temperature can be measured by attaching the thermometer to the low pressure tubing and wrap it with putty.

Electronic Parts Troubleshooting Guide

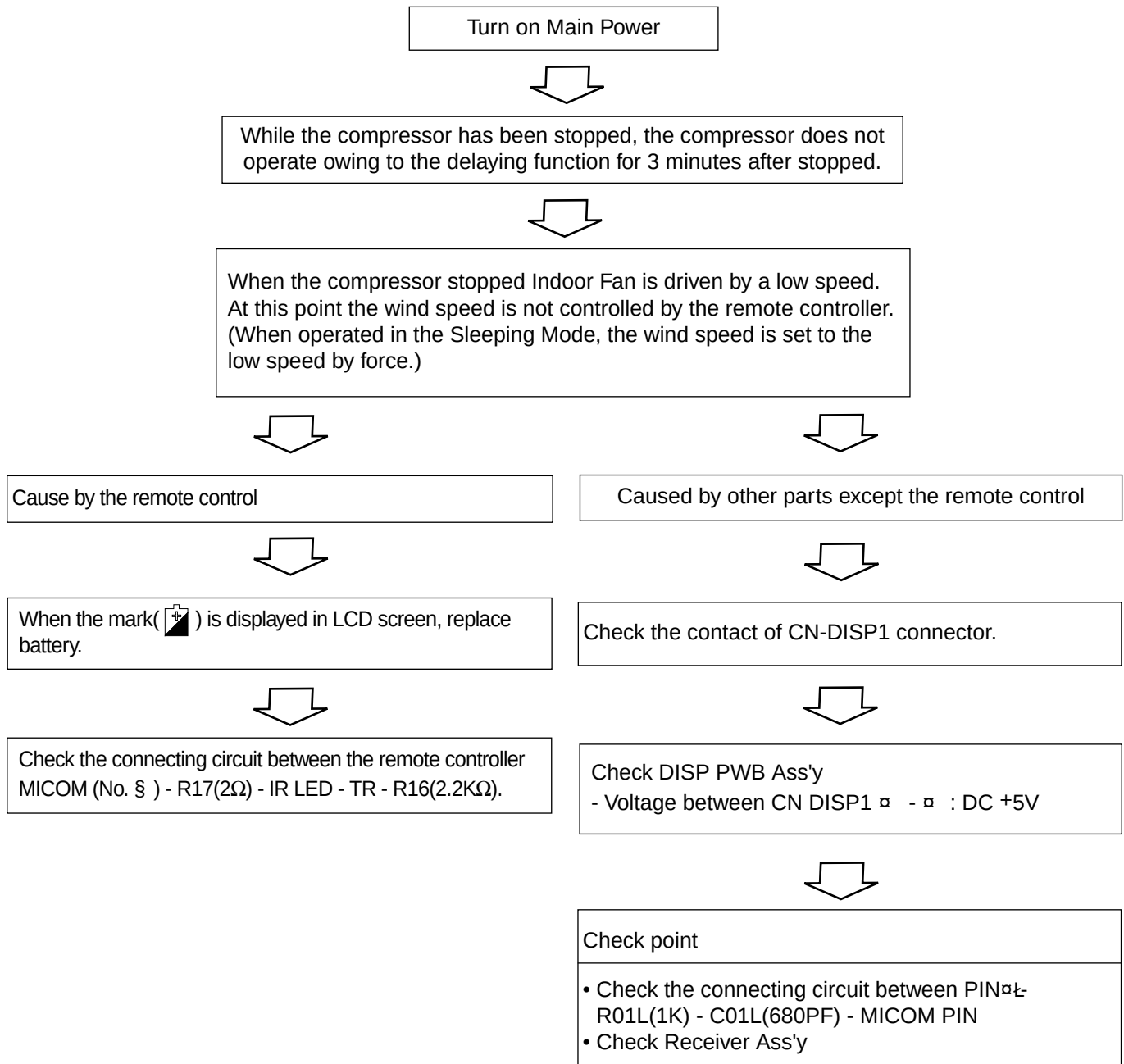
1. Product does not operate at all.

(* Refer to Electronic Control Device drawing and Schematic diagram.)

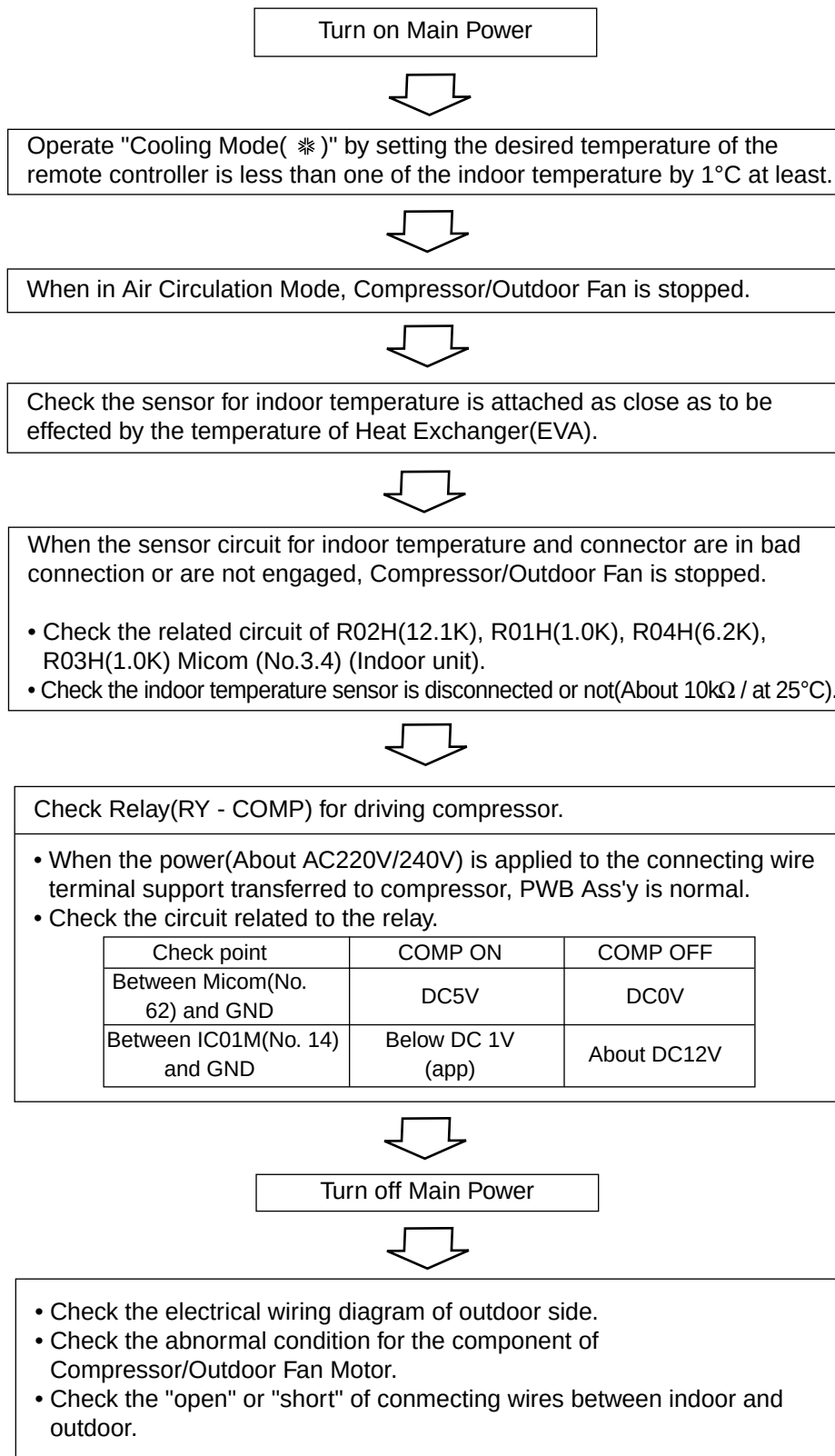


PCB Board Operation Check		
Items	Content	Remedy
- Power Transformer (Outdoor unit) - Input Voltage - Output Voltage - IC01D(7812) Output (Indoor/Outdoor unit) - IC02D(7805) Output (Indoor/Outdoor unit) - IC01A(KIA7036, Reset IC) X01(8MHz)	- About AC220V/240V±10% - Check the power voltage - About AC14±3V • DC +12V • DC +5V • Voltage of Micom No. 2, (DC +4.5V over) and Soldering condition.	• Replace Trans • Replace IC01D • Replace IC02D • Replace faulty parts

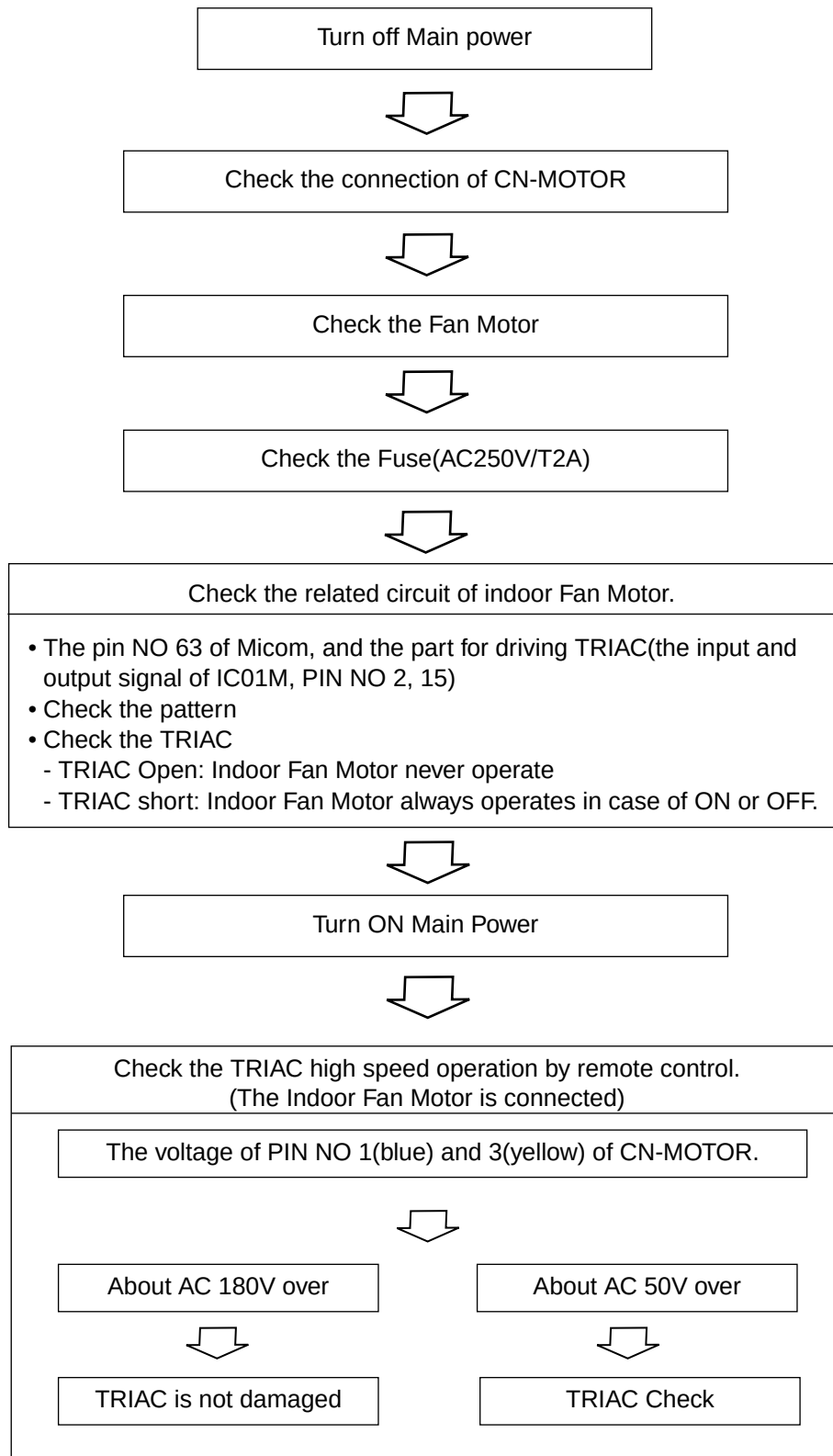
2. The product is not operate with the remote control.



3. Compressor/Outdoor Fan are unable to drive.



4. When indoor Fan does not operate.



5. When Vertical Louver does not operate.

- Confirm that the Vertical Louver is normally geared with the shaft of Stepping Motor.
- If the regular torque is detected when rotating the Vertical Louver with hands Φ ; Normal



- Check the connecting condition of CN-U/D Connector
- Check the soldering condition(on PWB) of CN-U/D Connector



Check the operating circuit of the Vertical Louver

- Confirm that there is DC +12V between pin α (RED) of CN-U/D and GND.
- Confirm that there is a soldering short at following terminals.
 - Between ⑤⑧, ⑤⑨, ⑥⑩ and ⑥⑪ of MICOM
 - Between αE , α° , α and α of IC01M
 - Between α , αE α and α of IC01M



If there are no problems after above checks

- Confirm the assembly conditions that are catching and interfering parts in the rotation radial of the Vertical Louver

6. When Heating does not operate

Turn ON Main Power



Operate "Heating Mode(☀)" by setting the desired temperature of the remote control is higher than one of the indoor temperature by 2°C at least.



In heating Mode, the indoor fan operates in case the pipe temperature is higher than 28°C.



Check the connector of intake and pipe sensor(thermistors)

- Check the related circuit of R02H(12.1K), R01H(1.0K), R04H(6.2K), R03H(1.0K), Micom(No. 3, 4).
- Check the indoor room temperature is disconnected or not (about 10K Ω /at 25°C).
- Check the indoor pipe temperature is disconnected or not (about 5K Ω /at 25°C).



Check the DC voltage on the PWB ASS'Y

- The details of check are as followings

• Comp Relay.

Check point	Comp ON	Comp OFF
Between Micom (NO.62) and GND	DC 5V	DC 0V
Between IC01M (NO.14) and GND	Below DC 1V	About DC 12V

• Outdoor fan Relay

Check point	Fan ON	Fan OFF
Between Micom (NO.53) and GND	DC 5V	DC 0V
Between IC02M (NO.15) and GND	Below DC 1V	About DC 12V

• 4 way Relay

Check point	4 way ON	4 way OFF
Between Micom (NO.54) and GND	DC 5V	DC 0V
Between IC02M (NO.16) and GND	Below DC 1V	About DC 12V



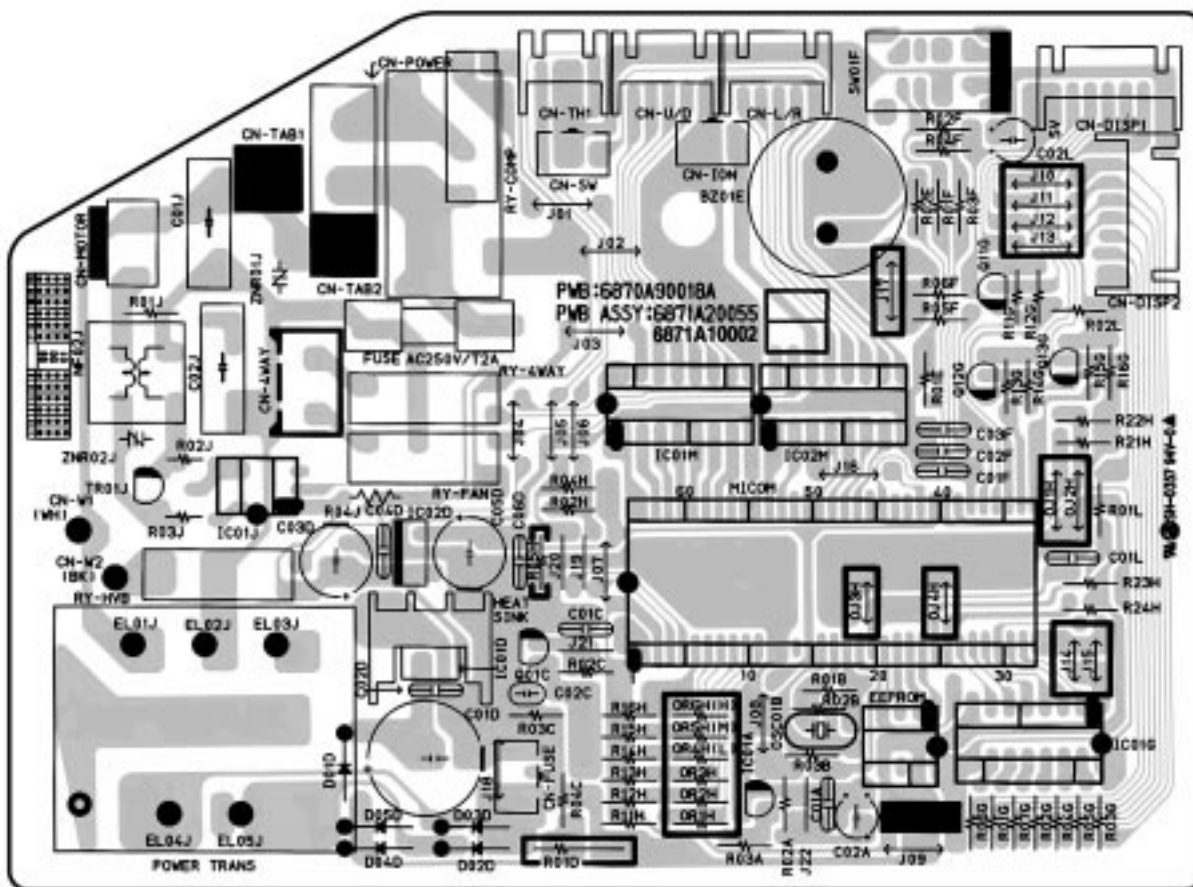
Turn off Main Power



- Check the electrical wiring diagram of outdoor side.
- Check the abnormal condition for the component of Compressor/Outdoor Fan Motor, 4 way.
- Check the "open" or "short" of connecting wires between indoor and outdoor.

Electronic Control Device

(1) MAIN P.C.B ASM

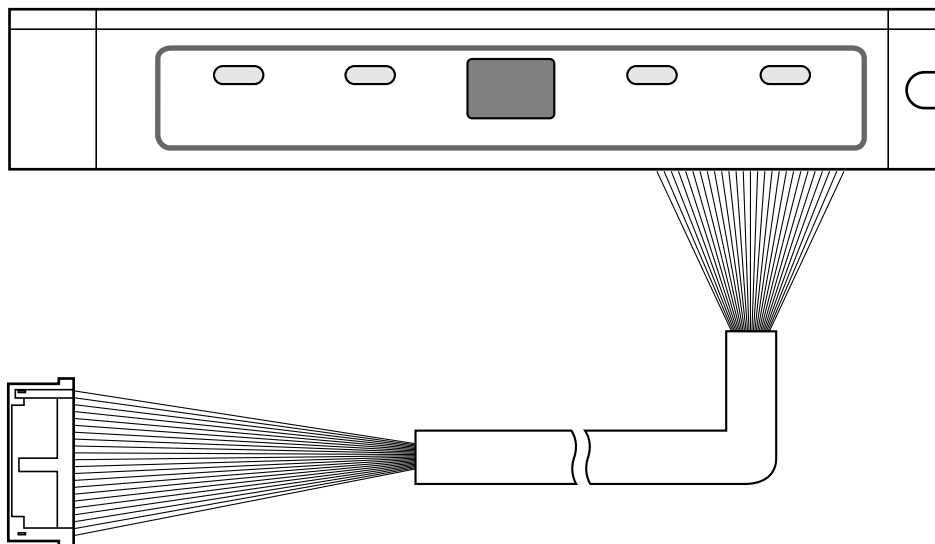


PCB ASS'Y SVC PART LIST

NO.	MODEL	P/NO	OPTIONAL FUNCTION					
			OR1H	OR2H	OR3H	OR4H	OR5H	OR6H
1	LS-J0761CL	6871A20055K	6.8K	OPEN	15K	6.8K	10K	6.8K
2	LS-J0761HL	6871A20055J	91K	200K	15K	6.8K	10K	6.8K
3	LS-J0962CL LS-J0963CL	6871A20055M	6.8K	OPEN	15K	27K	56K	39K
4	LS-J0962HL	6871A20055L	91K	200K	15K	27K	56K	39K
5	LS-J0821CL	6871A10002K	6.8K	OPEN	15K	20K	15K	39K

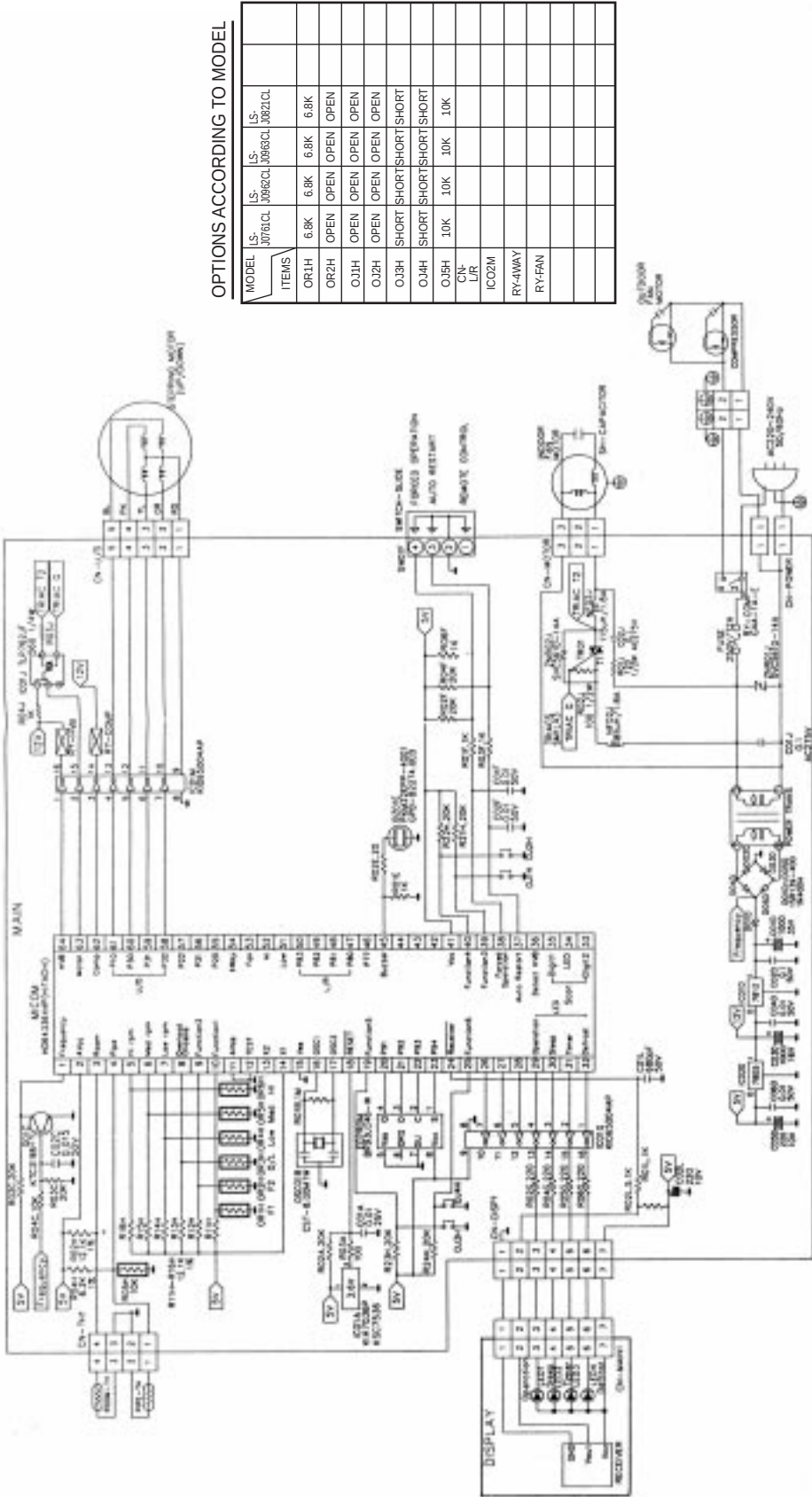
(2) Display Ass'y

- LS-J0761CL/HL, LS-J0962CL/HL(P/NO.:6871A30009C)



Schematic Diagram

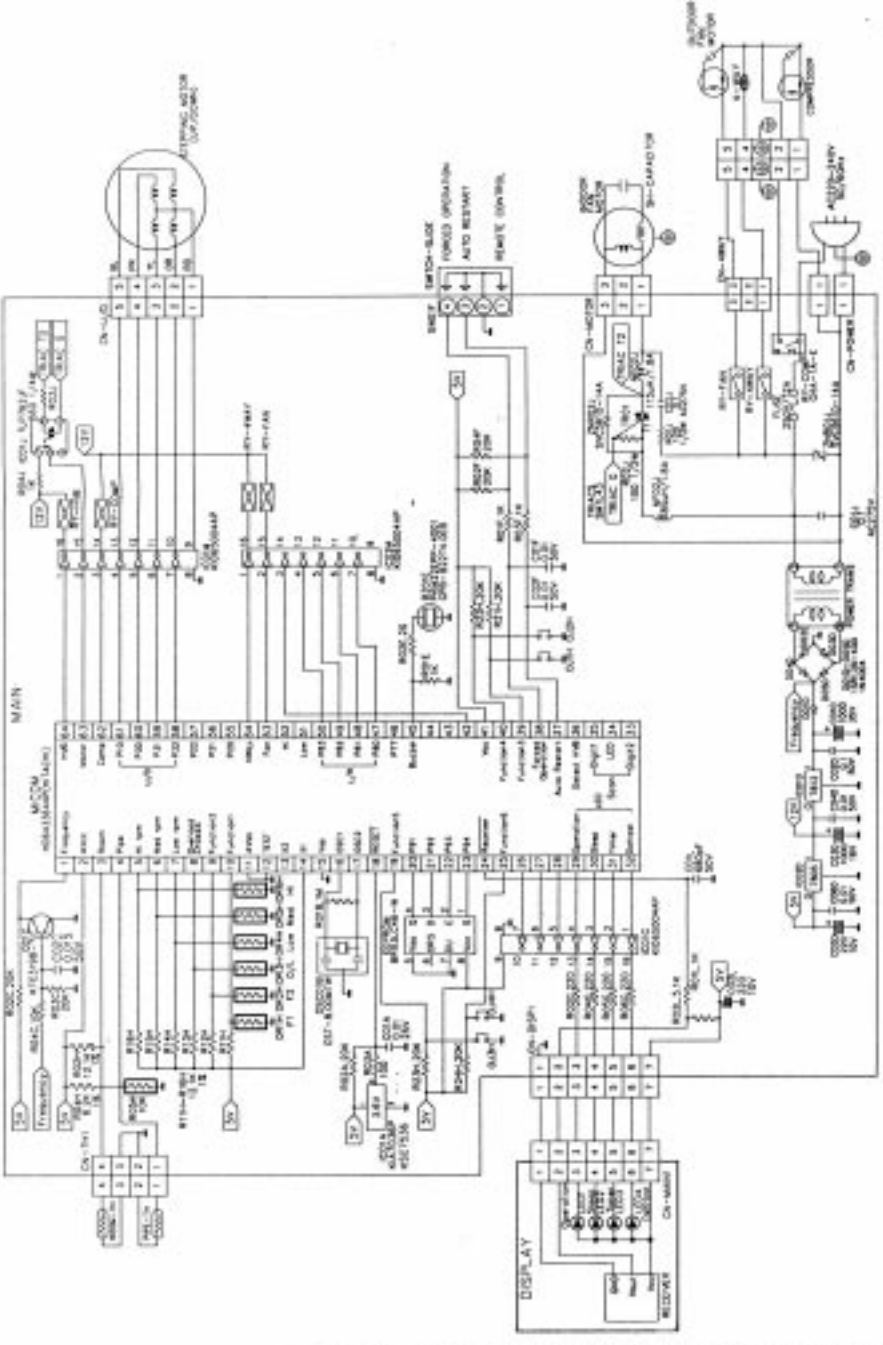
Cooling Only Series



OPTIONS ACCORDING TO MODEL

MODEL	US	US	US	US	US
ITEMS	US	US	US	US	US
OR1H	6.8K	6.8K	6.8K	6.8K	6.8K
OR2H	OPEN	OPEN	OPEN	OPEN	OPEN
OJ1H	OPEN	OPEN	OPEN	OPEN	OPEN
OJ2H	OPEN	OPEN	OPEN	OPEN	OPEN
OJ3H	SHORT	SHORT	SHORT	SHORT	SHORT
OJ4H	SHORT	SHORT	SHORT	SHORT	SHORT
OJ5H	10K	10K	10K	10K	10K
CN	LR				
IC02M					
RY-4WAY					
RY-FAN					

Heat Pump Series



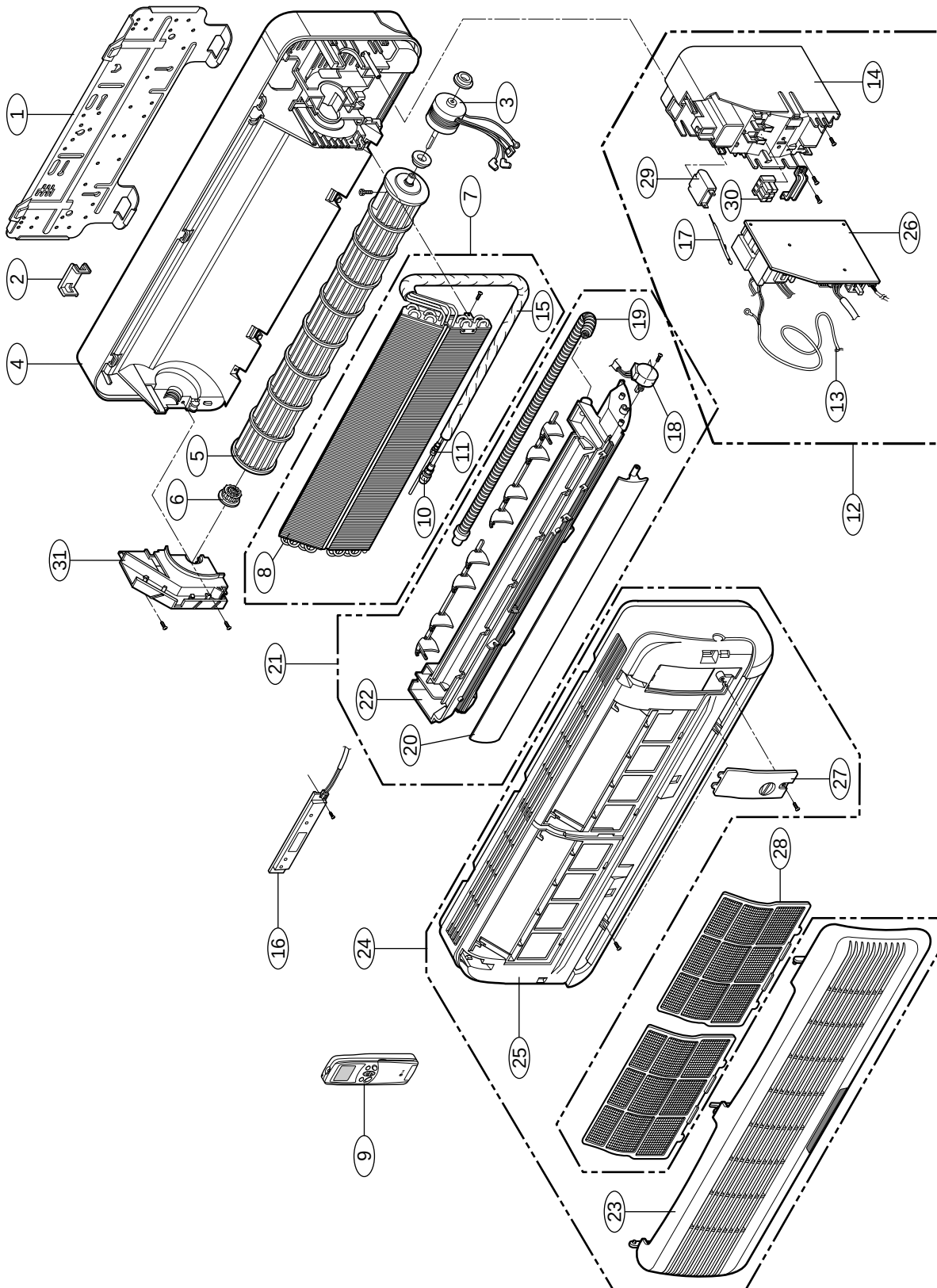
OPTIONS ACCORDING TO MODEL

MODEL	12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100
12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100	

Exploded View & Replacement Parts List

1. Indoor Unit

(1) LS-J0761CL/HL, LS-J0962CL/HL, LS-J0963CL, LS-J0821CL

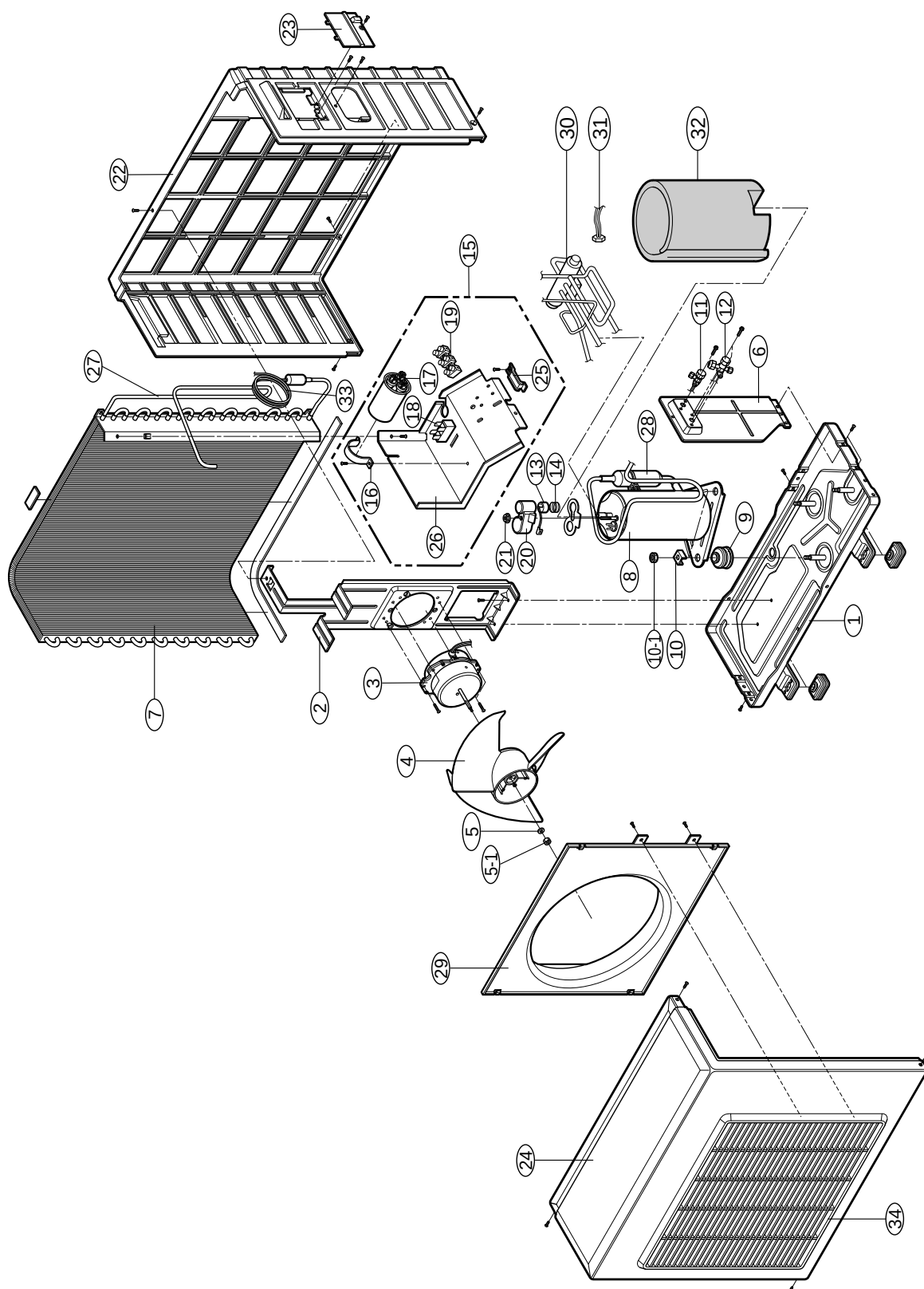


Parts List (LS-J0761CL/HL, LS-J0962CL/HL)

NO.	PART NO.	PART NAME	Q/TY					REMARKS
			LS-J0761CL	LS-J0761HL	LS-J0962CL LS-J0963CL	LS-J0962HL	LS-J0821CL	
1	3300A10002A	PLATE INSTALLATION	1	1	1	1	1	R
2	3H03651A	HOLDER, TUBE	1	1	1	1	1	
3	4681A20003C	MOTOR, BLOWER	1	1	1	1	1A	R
4	3141A20001B	CHASSIS ASM	1	1	1	1	1	R
5	5901AR6141A	CROSS FLOW FAN	1	1	1	1	1	R
6	3H02821B	BEARING ASM	1	1	1	1	1	R
7	5421AR6176	EVAPORATOR ASM	1C	1D	1G	1M	1G	R
8	5421AR6175	EVAPORATOR	1B	1B	1A	1A	1A	R
9	6711A20010	REMOTE CONTROL ASM	1A	1B	1A	1B	1A	R
10	4010AR3071A	SOCKET FLARE	1	1	1	1	1	
11	3A00375D	SOCKET FLARE	1	1	1	1	1	
12	4995A20024	CONTROLLER ASM	1G		1H		1T	R
	4995A20015			1L		1M		R
13	6411A20006B	POWER CORD ASSY	1	1	1	1	1	R
14	4994AR0011A	CONTROL BOARD	1	1	1	1	1	R
15	5211AR7288	TUBING ASM	1A	1A	1C	1C	1C	R
16	6871A30009	PWB(PCB) ASSY, DISPLAY	1C	1C	1C	1C	1C	R
17	6323AQ2333	THERMISTEOR ASSY	1B	1A	1B	1A	1A	R
18	4681AR2727H	STEPPING MOTOR	1	1	1	1	1	R
19	5251AR2575A	DRAIN HOSE ASM	1	1	1	1	1	R
20	5990AR7225D	VANE	1	1	1	1	1	R
21	3531A10005	DISCHARGE GRILLE ASM	1A	1A	1A	1A	1A	R
22	5008AR1573A	DISCHARGE GRILLE	1	1	1	1	1	
23	3531A20003	INLET GRILLE	1N	1M	1N	1M	1N	R
24	3531A10001	FRONT GRILLE ASM	1S	1R	1S	1R	1S	R
25	3530AR1576	FRONT GRILLE	1A	1B	1A	1B	1A	R
26	6871A20055	PWB(PCB)ASSY, MAIN	1K	1J	1M	1L	-	R
	6871A10022						1K	
27	3550AR3724B	COVER CONTROL	1	1	1	1	1	
28	5230AR2630A	FILTER ASSY	2	2	2	2	2	R
29	3H01487A	SH CAPACITOR	1	1	1	1	1	R
30	4H03048	PILLAR TERMINAL	1H	1J	1H	1J	1H	R
31	4930AR6138A	HOLDER, EVA	1	1	1	1	1	R

2. Outdoor unit

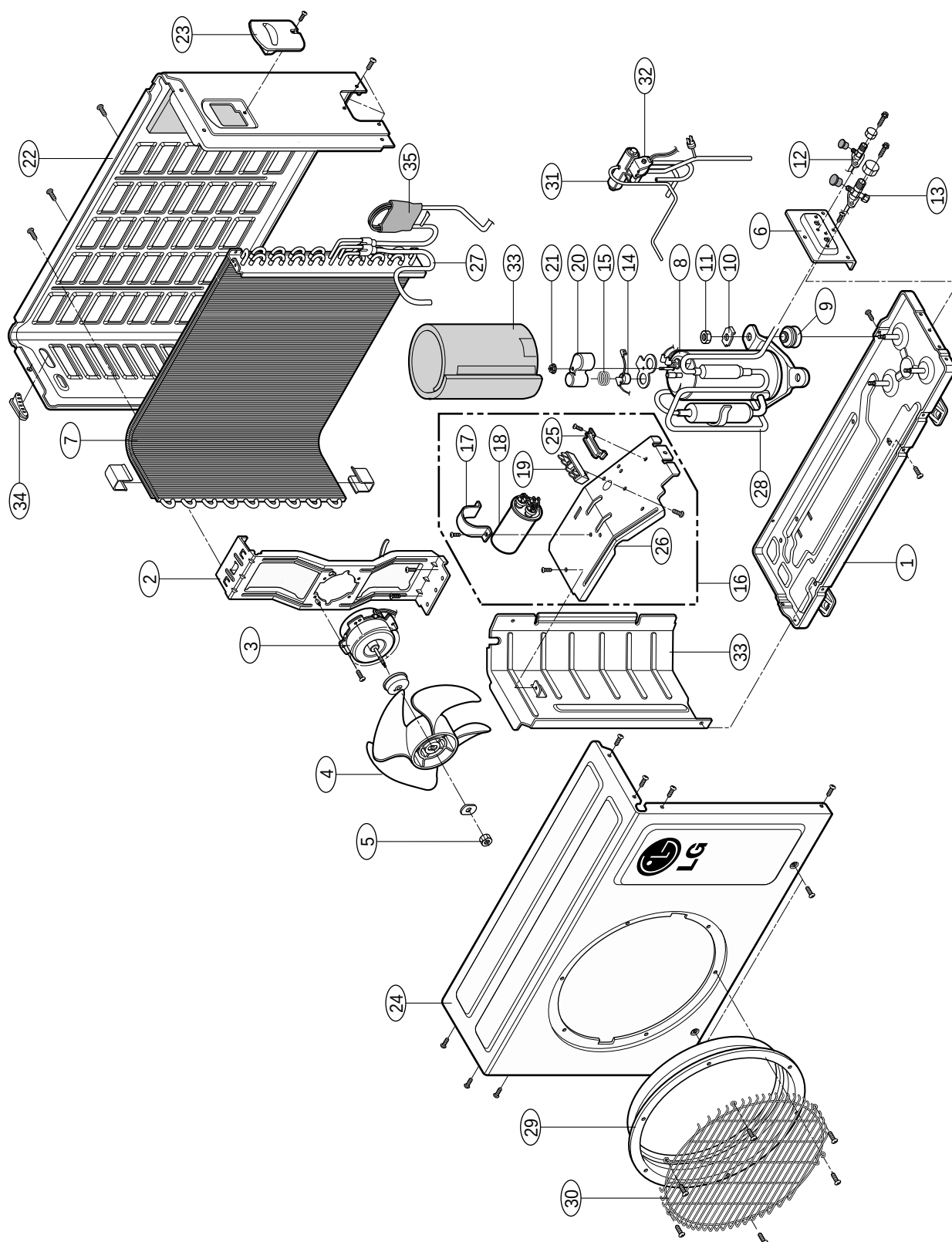
LS-J0761CL/HL, LS-J0962CL, LS-J0963CL, LS-J0821CL



Parts List (LS-J0761CL/HL, LS-J0962CL)

NO	PART No.	PART NAME	LS-J0761CL	LS-J0761HL	LS-J0962CL	LS-J0963CL	LS-J0821CL	REMARK
1	3040AR2415	BASE PAN W.ASM	1E	1E	1K	1K	1K	R
2	4810AR1287A	MOTOR BRACKET	1	1	1	1	1	R
3	4681A20004	MOTOR, FAN	1E	1E	1F	1F	1G	R
4	5900AR1266A	FAN	1	1	1	1	1	R
5	1WPA0600014	PLAIN WASHER	1	1	1	1	1	
5-1	4H02861A	FAN NUT	1	1	1	1	1	R
6	4908AR2417C	SUPPORT VALVE	1	1	1	1	1	
7	5403AR2475	CONDENSER ASM		1E			1B	
8	5403AR2870		1D		1F	1F		
	5416A20004	COMPRESSOR ASM	1E	1D				R
	5417AR2760S				1			R
	5417A20013L					1		R
	5417A20012F						1	
9	4H00982E	ANTI VIBRATION	3	3	3	3	3	R
10	4810AR4155	WASHER	3A	3A	3A	3A	3A	R
10-1	1NHA0801206	HEXAGON NUTS(D8.0)	3	3	3	3	3	
11	2H02479	SERVICE VALVE(1/4".H4)	1B	1B	1B	1B	1B	R
12	2A00393	SERVICE VALVE(3/8".H4)	1M	1M	1U	1U	1M	R
13	6750U-L014A	OVER LOAD PROTECTOR	1	1				R
	6750U-L002A				1			R
	6750A30001C					1	1D	R
14	4970U-L002A	O.L.P SPRING	1	1	1			R
	4970A30009A					1	1	R
15	4995AR2566	CONTROL BOX ASM	1C		1D	1F	1E	
	4995A20031			1A				
16	4H01017A	CLAMP CAPACITOR	1	1	1	1	1	
17	2A00986Q	SH CAPACITOR	1					R
	6120AR2194			1H			1G	R
	2H01451				1T	1P		R
18	3H00390	TERMINAL BLOCK	1B	1A,1B	1B	1B	1B	R
19	4H03048	PILLAR TERMINAL	1H	1J	1H	1H	1H	
20	3550U-L002D	TERMINAL COVER	1	1	1			
	3550A30048					1B	1D	
21	4H00947A	NUT, TERMINAL COVER	1	1	1	1	1	
22	3530AR0058	GRILLE REAR PANEL	1C	1C	1B	1B	1B	
23	4994AR3492B	COVER CONTROL	1	1	1	1	1	
24	3531AR2512	FRONT PANEL ASM	1P	1P	1R	1R	1R	
25	4H01050A	BAND CORD	1	1	1	1	1	
26	4994AR1276A	CONTROL BOX	1	1	1	1	1	
27	5210A30170B	TUBE DISCHARGE	1					R
	5210A30195A			1				
	5211A30274				1A	1C		
	5210A30808B						1	
28	5210A30155A	TUBE SUCTION	1					R
	5210A30194A			1				
	5210A20101				1A	1C		
	5210A20139A						1	
29	4948A10004A	ORIFICE	1	1	1	1	1	R
30	5211A30095A	REVERSING VALVE ASM	-	1	-	-	-	
31	6141AR3733F	REVERSING COIL	-	1	-	-	-	
32	3096A30003	SOUND PROOF	1E	1E	1H	1H	1H	R
33	5211A30096A	CAPILLARY FINAL ASSY		1				
	5211A30082C		1				1D	
	5211A30275A				1	1		
34	3700A10001B	NET, STEEL	1	1	1	1	1	R

3. Outdoor unit LS-J0962HL



Parts List (LS-J0962HL)

NO	PART No.	PART NAME	LS-J0962HL	REMARK
1	3041A20008	BASE PAN W.ASM	1F	
2	4960A10002A	MOTOR BRACKET	1	R
3	4681A20004	MOTOR,FAN	1J	R
4	5901A10004A	FAN	1	
5	1WPA0600014	PLAIN WASHER	1	
5-1	4H02861A	FAN NUT	1	
6	4908A20006B	SUPPORT VALVE	1	
7	5403A20028	CONDENSER ASM	1B	
8	5417A20012C	COMPRESSOR ASM	1	R
9	4H00982E	ANTI VIBRATION	3	R
10	4810AR4155	WASHER	3A	
11	1NHA0801206	HEXAGON NUTS(D8.0)	3	
12	2H02479	SERVICE VALVE(1/4".H4)	1H	R
13	2A00393	SERVICE VALVE(3/8".H4)	1U	R
14	6750A30001C	OVER LOAD PROTECTOR	1	R
15	4970A30009A	O.L.P SPRING	1	
16	4995A20083A	CONTROL BOX ASM	1	
17	4H01008A	CLAMP CAPACITOR	1	R
18	2AH01451P	SH CAPACITOR	1	R
19	4G00103A	TERMINAL BLOCK	1	
20	3550A30048B	TERMINAL COVER	1	
21	4H00947A	NUT, TERMINAL COVER	1	
22	3721A20026B	GRILLE REAR PANEL	1	
23	3551A30023B	COVER CONTROL	1	
24	3721A20027A	FRONT PANEL ASM	1	
25	4H01050A	BAND CORD	1	
26	4994A20008A	CONTROL BOX	1	
27	5210A30601A	TUBE DISCHARGE	1	
28	5210A30602A	TUBE SUCTION	1	
29	4948A20001A	ORIFICE	1	
30	3530A20006B	GRILLE DISCHARGE	1	
31	5211A20116A	REVERSING VALVE ASM	1	
32	6141AR3733F	REVERSING COIL	1	
33	3096A30010A	SOUND PROOF	1	
34	3H03168D	HANDLE	1	R
35	5211A20117A	CAPILLARY FINAL ASSY	1	R

* NOTE: () is for LGEAP

Product Specifications (Cooling Only)

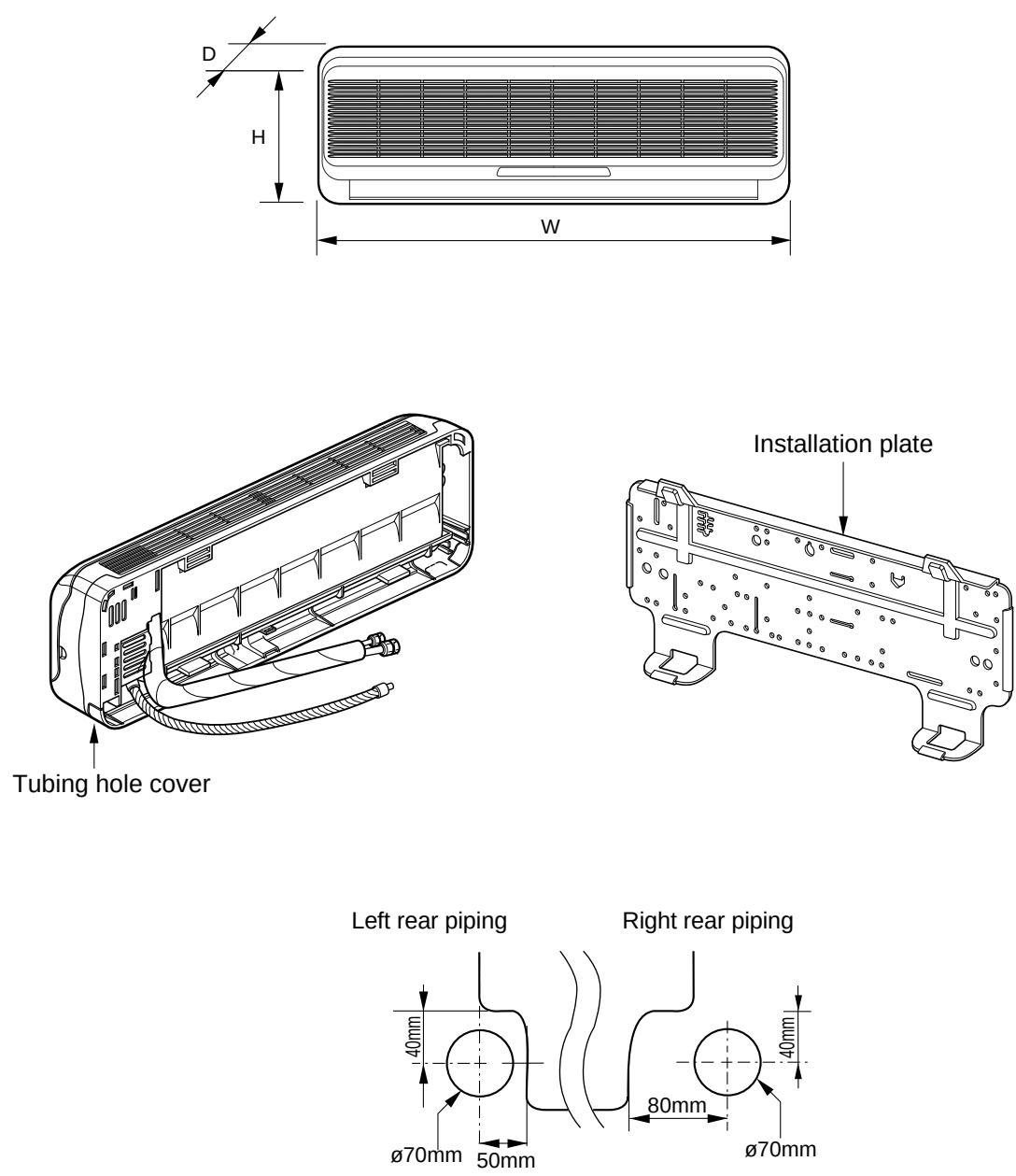
Model Name			LS-J0761CL	LS-J0962CL	LS-J0821CL	LS-J0963CL
Item	Unit					
Cooling Capacity		Btu/h	7,000	9,000	8,000	9,000
Moisture Removal		l/h	1.0	1.2	1.0	1.2
Power Source		Ø, V, Hz	1Ø, 220-240V, 50Hz		1ø 220V, 60Hz	1Ø, 220-240V, 50Hz
Air Circulation	Indoor	m³/min	5.6	6.7	6.2	6.7
	Outdoor		18	20	18	20
Noise Level	Indoor	dB (A) i 3	32	33	32	33
	Outdoor		46	46	46	46
Input		W	690	930	670	920
Running Current		A	2.9	4.1	3.1	4.0
E.E.R.		Btu/hW	10.14	9.7	11.9	9.8
Motor Output	Indoor	W	5	5.7	5	5.7
	Outdoor		14	14.5	14	14.5
Dimensions (W x H x D)	Indoor	mm	802 x 262 x 165			
	Outdoor		525 x 564 x 265			
Net. Weight	Indoor	kg	7			
	Outdoor		20	25	23	23
Refrigerant (R22)		g	440	470	590	530
Airflow Direction Control (Up & Down)			§	§	§	§
Remocon Type			L.C.D Wireless			
Service Valve	Liquid	inch(mm)	1/4" (6.35)			
	Gas		3/8" (9.52)			
Sleeping Operation			§	§	§	§
Drain Hose			§	§	§	§
Connecting Cable			1.0mm²			
Power Cord			1.0mm²			

Product Specifications (Cooling & Heating)

Model Name			LS-J0761HL	LS-J0962HL
Item	Unit			
Cooling Capacity		Btu/h	7,000	9,000
Heating Capacity			7,300	9,300
Moisture Removal		l/h	1	1.2
Power Source		Ø, V, Hz	1Ø, 220-240V, 50Hz	
Air Circulation	Indoor	m³/min	5.6	6.7
	Outdoor		18	25
Noise Level	Indoor	dB (A) i 3	32	33
	Outdoor		46	46
Input	Cooling	W	750	900
	Heating		680	870
Running Current	Cooling	A	3.3	3.9
	Heating		3.0	3.8
E.E.R.	Cooling	Btu/hW	9.33	10.0
C.O.P	Heating		3.14	3.13
Motor Output	Indoor	W	5	5.7
	Outdoor		14	14.5
Dimensions (W i H i D)	Indoor	mm	802 x 262 x 165	802 x 262 x 165
	Outdoor		525 x 564x 265	770 x 540 x 245
Net. Weight	Indoor	kg	7	7
	Outdoor		21	33
Refrigerant (R22)		g	640	590
Airflow Direction Control (Up & Down)			§	§
Remocon Type			L.C.D Wireless	
Service Valve	Liquid	inch(mm)	1/4" (6.35)	
	Gas		3/8" (9.52)	
Sleeping Operation			§	§
Drain Hose			§	§
Connecting Cable			1.0mm²	
Power Cord			1.0mm²	

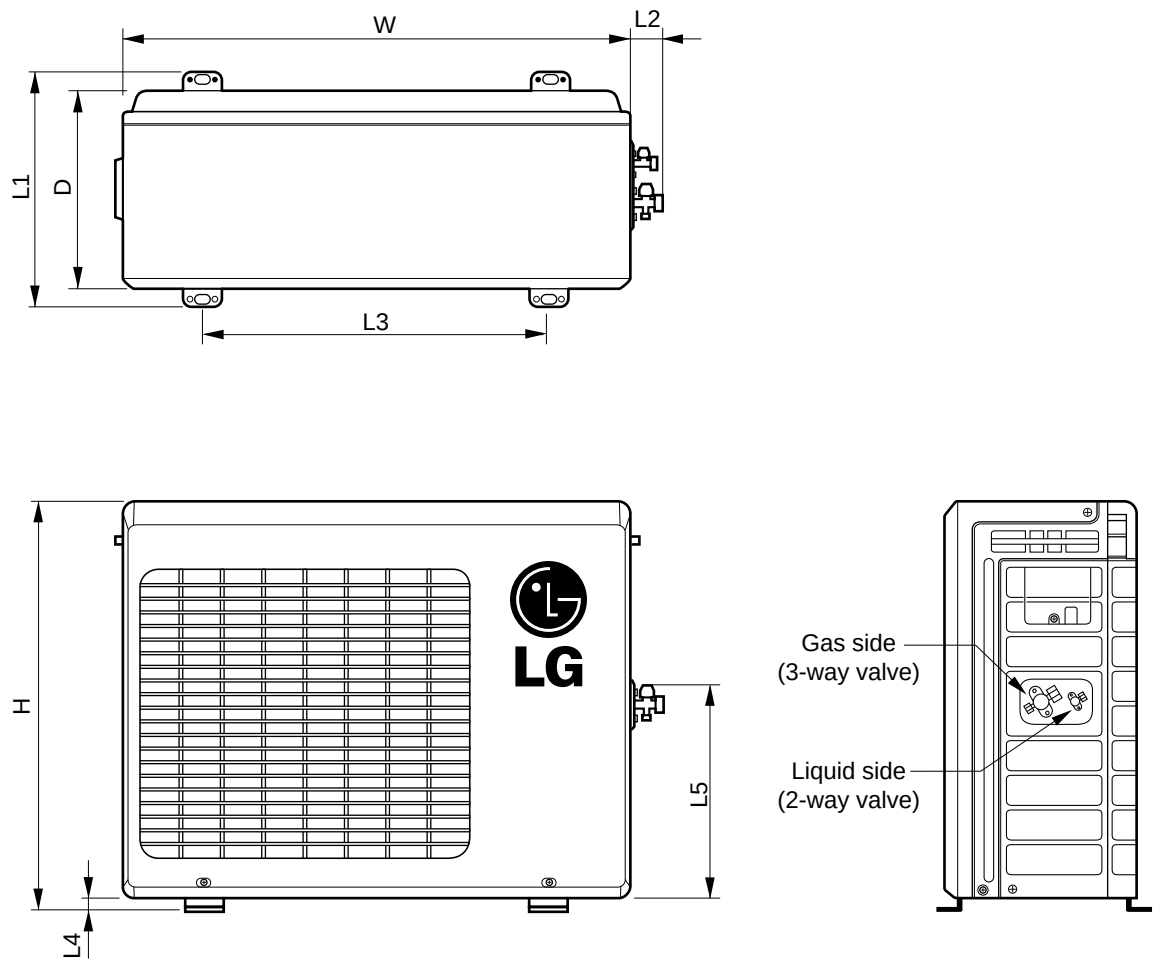
Dimensions

(1) Indoor Unit



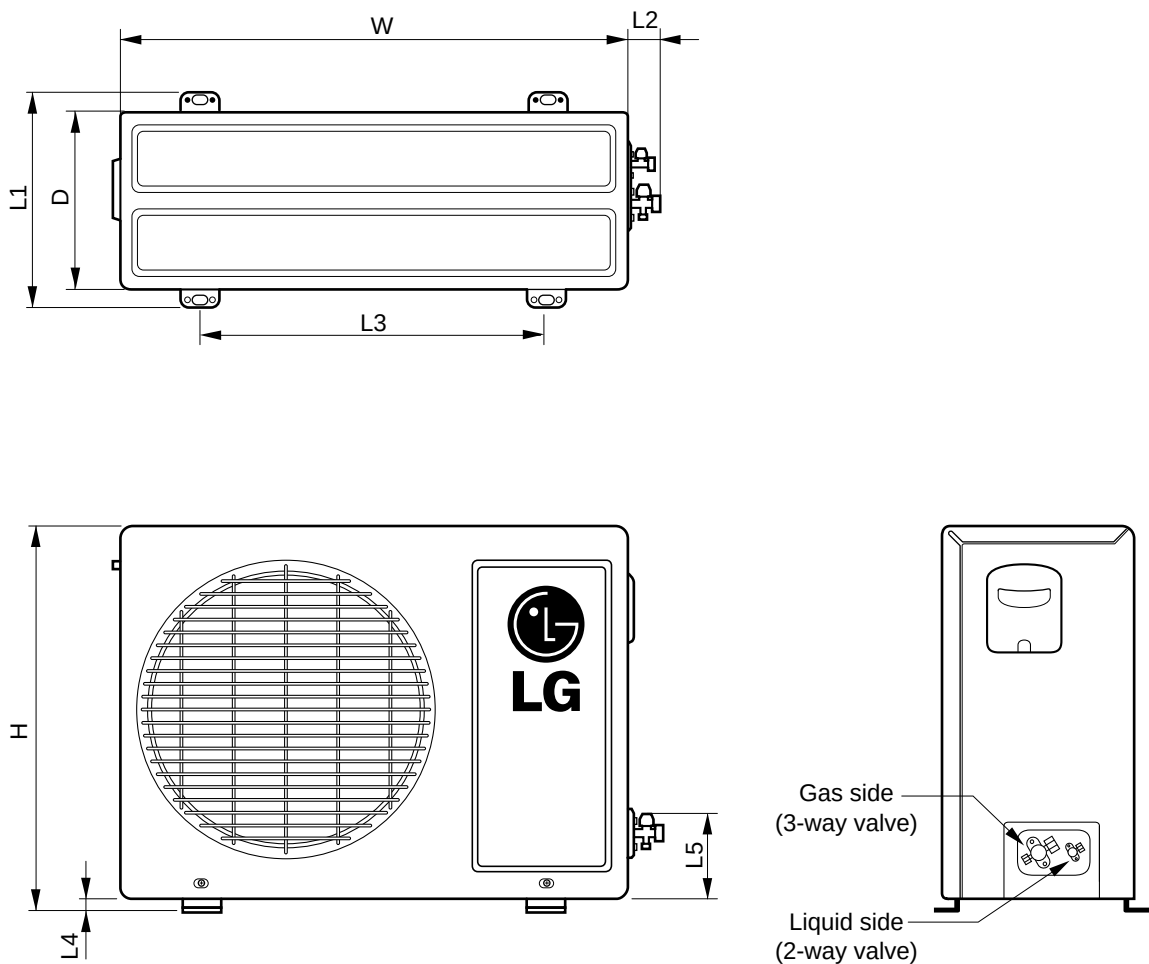
DIM	MODEL	
	Unit	LS-J0761CL/HL LS-J0821CL LS-J0962CL/HL LS-J0963CL
W	mm	802
H	mm	262
D	mm	165

(2) Outdoor Unit (7K, 9K)



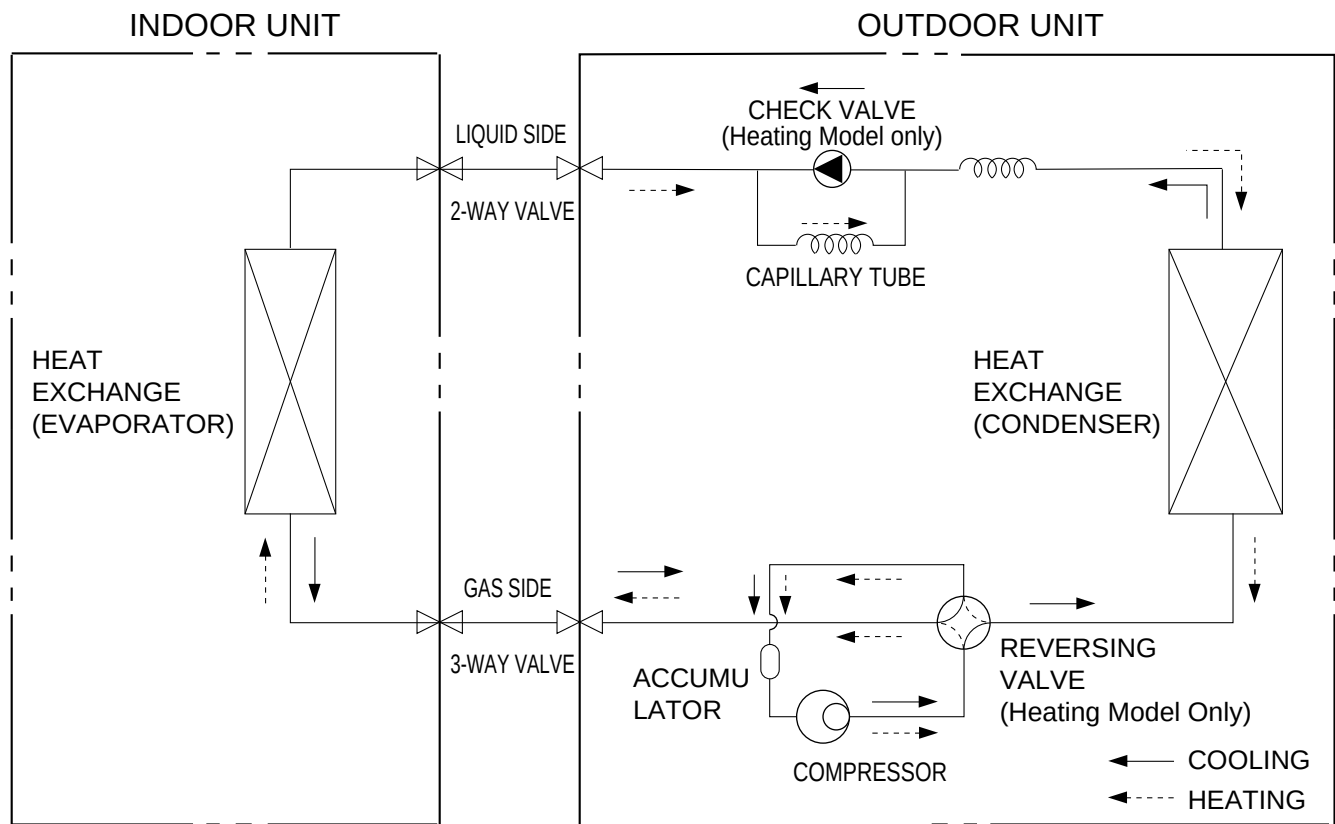
MODEL		LS-J0761CL/HL LS-J0821CL LS-J0962CL LS-J0963CL
DIM	unit	
W	mm	564
H	mm	525
D	mm	265
L1	mm	294
L2	mm	66
L3	mm	374
L4	mm	17
L5	mm	270

(3) Outdoor Unit (LS-J0962HL)



MODEL		9K Btu Heat Pump
DIM	unit	
W	mm	770
H	mm	540
D	mm	245
L1	mm	285
L2	mm	65
L3	mm	518
L4	mm	10
L5	mm	100

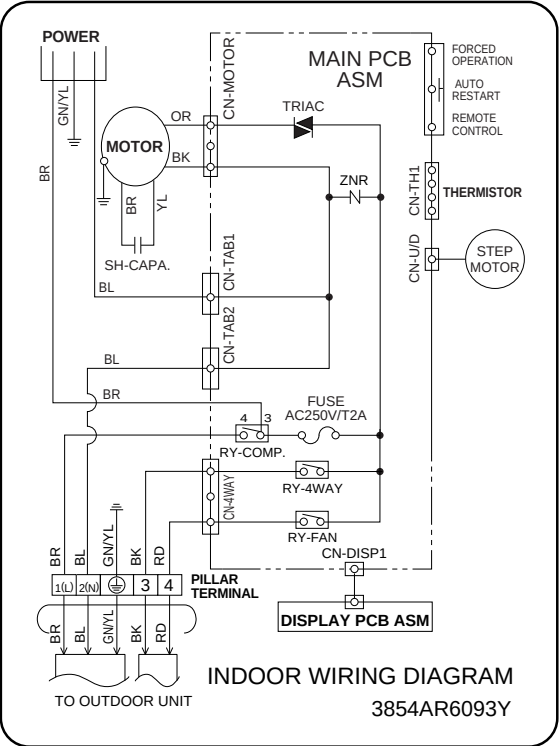
Refrigeration Cycle Diagram



MODEL	Pipe size(Diameter:Ø)		MAX. Piping length (m)	Max Elevation (m)
	Gas(inch)	Liquid(inch)		
7K, 9K Btu SERIES	3/8"	1/4"	15	7

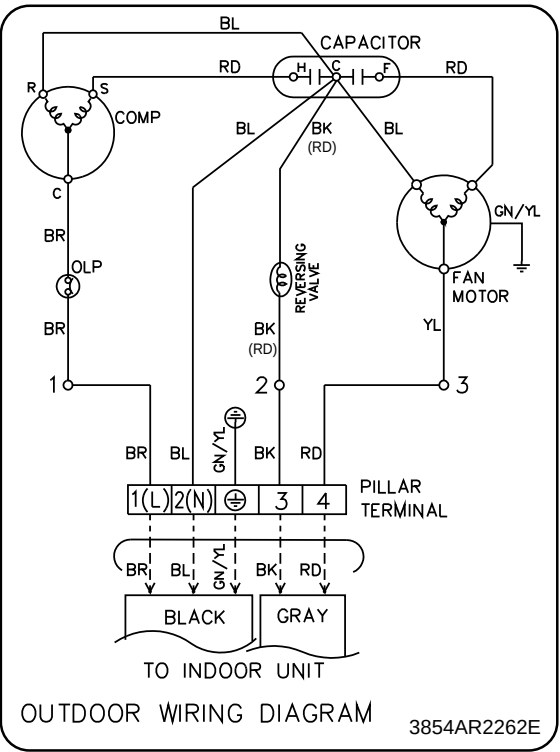
(2) 7K, 9K Btu Cooling & Heating

① Indoor Unit

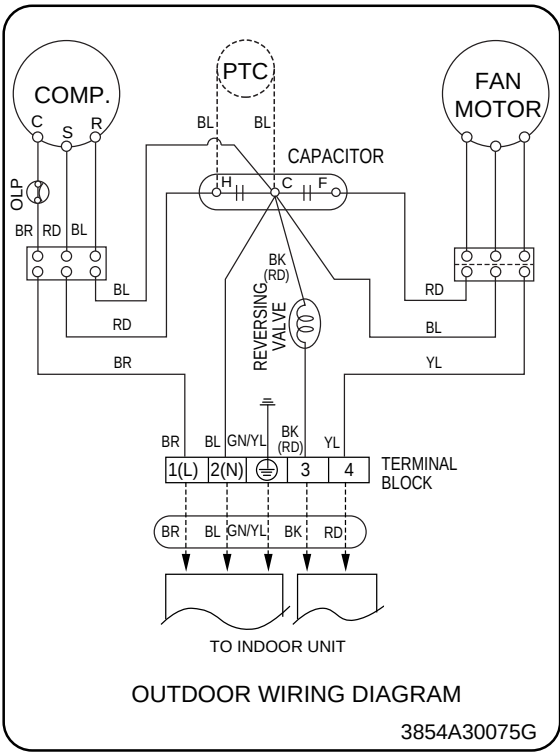


Indoor unit	Model	Outdoor unit
①	LS-J0761HL	②
	LS-J0962HL	③

② Outdoor Unit



③ Outdoor Unit



Operation Details

1. MAIN UNIT FUNCTION

• DISPLAY

1) C/O Model

Operation Indicator

- On while in appliance operation, off while in appliance pause
- Flashing while in disconnection or short in Thermistor (3 sec off / 0.5 sec on)

Sleep Timer Indicator

- On while in sleep timer mode, off when sleep timer cancel or appliance operation pause

Timer Indicator

- On while in timer mode (on/off), off when timer mode is completed or canceled.

Comp. Running Indicator

- While in appliance operation, on while in outdoor unit compressor running, off while in compressor off

2) H/P Model

Operation Indicator

- On while in appliance operation, off while in appliance pause
- Flashing while in disconnection or short in Thermistor (3 sec off / 0.5 sec on)

Sleep Timer Indicator

- On while in sleep timer mode, off when sleep timer cancel or appliance operation pause

Timer Indicator

- On while in timer mode (on/off), off when timer mode is completed or canceled

Defrost Indicator

- Off except when hot start during heating mode operation or while in defrost control

■ Cooling Mode Operation

- When the intake air temperature reaches 0.5°C below the setting temp, the compressor and the outdoor fan stop.
- When it reaches 0.5°C above the setting temp, they start to operate again.
 - Compressor ON Temp ➤ Setting Temp+0.5°C
 - Compressor OFF Temp ➤ Setting Temp-0.5°C
- While in compressor running, operating with the airflow speed set by the remote control. While in compressor not running, operating with the low airflow speed regardless of the setting.

■ Healthy Dehumidification Mode

- When the dehumidification operation input by the remote control is received, the intake air temperature is detected and the setting temp is automatically set according to the intake air temperature.
 - 26°C ≤ Intake Air Temp ➤ 25°C
 - 24°C ≤ Intake Intake Air Temp < 26°C ➤ Intake Air Temp-1°C
 - 18°C ≤ Intake Intake Air Temp < 24°C ➤ Intake Air Temp-0.5°C
 - Intake Air Temp < 18°C ➤ 18°C

- While in compressor off, the indoor fan repeats low airflow speed and pause.
- While the intake air temp is between compressor on temp. and compressor off temp., 10-min dehumidification operation and 4-min compressor off repeat.
Compressor ON Temp. ➤ Setting Temp+0.5°C
Compressor OFF Temp. ➤ Setting Temp-0.5°C
- In 10-min dehumidification operation, the indoor fan operates with the low airflow speed.

■ Heating Mode Operation

- When the intake air temp reaches +3°...above the setting temp, the compressor is turned off. When below the setting temp, the compressor is turned on.
Compressor ON Temp. ➤ Setting Temp.
Compressor OFF Temp. ➤ Setting Temp.+3°C
- While in compressor on, the indoor fan is off when the indoor pipe temp. is below 20°C, when above 28°C , it operates with the low or setting airflow speed. When the indoor pipe temp is between 20°C and 28°C, it operates with Super-Low(while in sleep mode, with the medium airflow speed).
- While in compressor off, the indoor fan is off when the indoor pipe temp is below 33°C, when above 35°C , it operates with the low airflow speed.
- If overloaded while in heating mode operation, in order to prevent the compressor from OLP operation, the outdoor fan is turned on/off according to the indoor pipe temp.
- While in defrost control, both of the indoor and outdoor fans are turned off.

■ Defrost Control

- While in heating mode operation in order to protect the evaporator pipe of the outdoor unit from freezing, reversed to cooling cycle to defrost the evaporator pipe of the outdoor unit.
- Defrost control is available 60 min. later since heating mode operation started, and it will not prolong over 12 min.
- Defrost control is carried out according to the following priority order while in heating mode operation.
1st priority: Defrost control is carried out according to the indoor pipe temp 60 min. later since heating mode operation started.
2nd priority : The temp differences between the indoor pipe temp and the intake air temp 25 min. later ($\Delta T1$) and 60 min. later ($\Delta T2$) since heating mode operation started are measured, then defrost control is carried out according to the difference ($\Delta T = \Delta T1 - \Delta T2$).
3rd priority : Defrost control is carried out according to the temp difference ($\Delta TE = TE1 - TE2$) between the indoor pipe temperatures of 25 min later (TE1) and 60 min later (TE2) after heating mode operation started.
- When the indoor pipe temp is 41°C or above, defrost control is not carried out even if the condition is one of the defrost conditions above.
- While in defrost control, the compressor is on and the indoor fan, the outdoor fan, and the 4 way valve are off.

■ Fuzzy Operation (C/O Model)

- According to the temperature set by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
Compressor ON Temp ➤ Setting Temp + 0.5°C
Compressor OFF Temp ➤ Setting Temp + 0.5°C
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
26°C ≤ Intake Air Temp ➤ 25°C
24°C ≤ Intake Air Temp < 26°C ➤ Intake Air Temp + 1°C
22°C ≤ Intake Air Temp < 24°C ➤ Intake Air Temp + 0.5°C
18°C ≤ Intake Air Temp < 22°C ➤ Intake Air Temp
Intake Air Temp < 18°C ➤ 18°C
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically selected according to the temperature.

■ Fuzzy Operation (H/P Model)

- When any of operation mode is not selected like the moment of the power on or when 3 hrs has passed since the operation off, the operation mode is selected.
- When determining the operation mode, the compressor, the outdoor fan, and the 4 way valve are off and only the indoor fan is operated for 15 seconds. Then an operation mode is selected according to the intake air temp at that moment as follows.
24°C ≤ Intake Air Temp ➤ Fuzzy Operation for Cooling
21°C ≤ Intake Air Temp < 24°C ➤ Fuzzy Operation for Dehumidification
Intake Air Temp < 21°C ➤ Fuzzy Operation for Heating
- If any of the operation modes among cooling / dehumidification / heating mode operations is carried out for 10 sec or longer before Fuzzy operation, the mode before Fuzzy operation is operated.

1) Fuzzy Operation for Cooling

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
Compressor ON Temp ➤ Setting Temp + 0.5°C
Compressor OFF Temp ➤ Setting Temp + 0.5°C
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
26°C ≤ Intake Air Temp ➤ 25°C
24°C ≤ Intake Air Temp < 26°C ➤ Intake Air Temp + 1°C
22°C ≤ Intake Air Temp < 24°C ➤ Intake Air Temp + 0.5°C
18°C ≤ Intake Air Temp < 22°C ➤ Intake Air Temp
Intake Air Temp < 18°C ➤ 18°C
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically selected according to the temperature.

2) Fuzzy Operation for Dehumidification

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.

Compressor ON Temp	➤ Setting Temp + 0.5°C
Compressor OFF Temp	➤ Setting Temp+0.5°C
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.

26°C ≤ Intake Air Temp	➤ 25°C
24°C ≤ Intake Air Temp < 26°C	➤ Intake Air Temp+1°C
22°C ≤ Intake Air Temp < 24°C	➤ Intake Air Temp+0.5°C
18°C ≤ Intake Air Temp < 22°C	➤ Intake Air Temp
Intake Air Temp < 18°C	➤ 18°C
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan repeats the low airflow speed or pause as in dehumidification operation.

3) Fuzzy Operation for Heating

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 3°C or more above the setting temp, the compressor is turned off. When below the setting temp, the compressor is turned on.

Compressor ON Temp	➤ Setting Temp
Compressor OFF Temp	➤ Setting Temp + 3°C
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.

20°C ≤ Intake Air Temp	➤ Intake Air Temp + 0.5°C
Intake Air Temp < 20°C	➤ 20°C
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is set to the high or the medium according to the intake air temperature and the setting temperature.

■ Airflow Speed Selection

- The airflow speed of the indoor fan is set to high, medium, low, or chaos (auto) by the input of the airflow speed selection key on the remote control.

■ On-Timer Operation

- When the set time is reached after the time is input by the remote control, the appliance starts to operate.
- The timer LED is on when the on-timer is input. It is off when the time set by the timer is reached.
- If the appliance is operating at the time set by the timer, the operation continues.

■ Off-Timer Operation

- When the set time is reached after the time is input by the remote control, the appliance stops operating.
- The timer LED is on when the off-timer is input. It is off when the time set by the timer is reached.
- If the appliance is on pause at the time set by the timer, the pause continues.

■ Off-Timer <=> On-Timer Operation

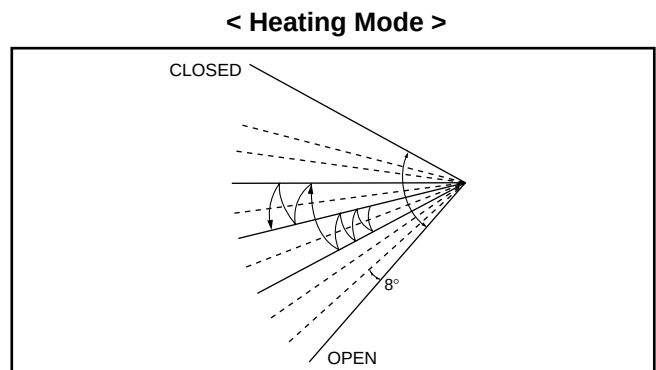
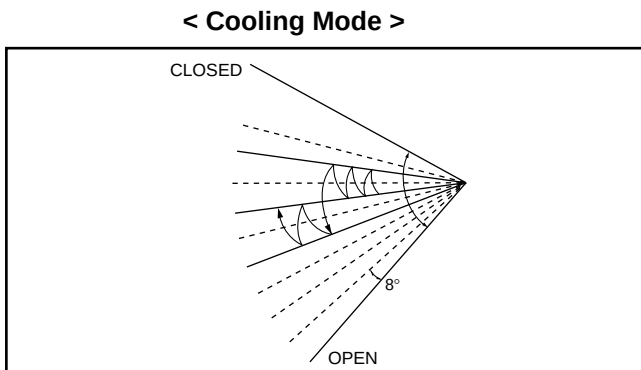
- When the set time is reached after the on/off time is input by the remote control, the on/off-timer operation is carried out according to the set time.

■ Sleep Timer Operation

- When the sleep time is reached after <1,2,3,4,5,6,7,0(cancel) hr> is input by the remote control while in appliance operation, the operation of the appliance stops.
- While the appliance is on pause, the sleep timer mode cannot be input.
- While in cooling mode operation, 30 min later since the start of the sleep timer, the setting temperature increases by 1°C. After another 30 min elapse, it increases by 1°C again.
- When the sleep timer mode is input while in cooling cycle mode, the airflow speed of the indoor fan is set to the low.
- When the sleep timer mode is input while in heating cycle mode, the airflow speed of the indoor fan is set to the medium.

■ Chaos Swing Mode

- By the Chaos Swing key input, the upper/lower vane automatically operates with the Chaos Swing or they are fixed to the desired direction.
- While in Chaos Swing mode, the angles of cooling and heating cycle operations are different.



■ Chaos Natural Wind Mode

- When the Chaos Natural Wind mode is selected and then operated, the high, medium, or low speed of the air-flow mode is operated for 2~15 sec. randomly by the Chaos Simulation.

■ Jet Cool Mode Operation (C/O Model)

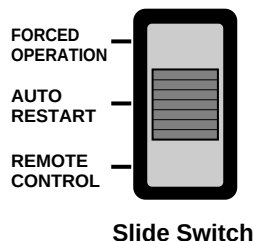
- If the Jet Cool key is input at any operation mode while in appliance operation, the Jet Cool mode operates.
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- When the Jet Cool key is input, the upper/lower vanes are reset to those of the initial cooling mode and then operated in order that the air outflow could reach further.

■ Jet Cool Mode Operation (H/P Model)

- While in heating mode or Fuzzy operation, the Jet Cool key cannot be input. When it is input while in the other mode operation (cooling, dehumidification, ventilation), the Jet Cool mode is operated.
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C.
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- When the Jet Cool key is input, the upper/lower vanes are reset to those of the initial cooling mode and then operated in order that the air outflow could reach further.

■ Auto Restarting Operation

- When the power is restored after a sudden power failure while in appliance operation, the mode before the power failure is kept on the memory and the appliance automatically operates in the mode on the memory.
- The slide switch on the main unit of the appliance should be on the Auto Restarting position in order that the Auto Restarting operation is available.
- Operation Mode that is kept on the memory
 - State of Operation ON/OFF
 - Operation Mode/Setting Temp/Selected Airflow Speed
 - Sleep Timer Mode/Remaining Time of Sleep Timer (unit of hour)
- If no input by the remote control or no switching of the slide switch within 7 hr after the appliance operates by the Auto Restarting operation, the appliance is forced to stop at the moment of 7-hr elapse.



■ Forced Operation (C/O Model)

- To operate the appliance by force in case that the remote control is lost, the forced operation selection switch is on the main unit of the appliance to operate the appliance in the standard conditions.
- When the power is supplied while the slide switch is on the forced operation position, or when the slide switch position is switched to the Auto Restarting position (or test operation) or switched from the remote control position to the forced operation position while the power is on, the forced operation is carried out.
- When the slide switch position is switched from the forced operation position to the Auto Restarting position or the remote control position, the forced operation is canceled and the appliance stops operating.
- The forced operation is carried out in cooling mode with the setting temperature 22°C and the high speed of airflow.
- While in forced operation, the key input by the remote control has no effect and the buzzer sounds 10 times to indicate the forced operation.

■ Forced Operation (H/P Model)

- To operate the appliance by force in case that the remote control is lost, the forced operation selection switch is on the main unit of the appliance to operate the appliance in the standard conditions.
- When the power is supplied while the slide switch is on the forced operation position, or when the slide switch position is switched to the Auto Restarting (or test operation) position or switched from the remote control position to the forced operation position while the power is on, the forced operation is carried out.
- When the slide switch position is switched from the forced operation position to the Auto Restarting position or the remote control position, the forced operation is canceled and the appliance stops operating.
- The forced operation is carried out in cooling mode with the setting temperature 22°C and the high speed of airflow.
- In the forced operation mode, the indoor fan is operated at low speed for around 15 sec and then the operation condition is set according to the intake air temperature as follows.
 - 24°C ≤ Intake Air Temp ➤ Cooling Mode Operation, 22°C, High Speed
 - 21°C ≤ Intake Air Temp < 24°C ➤ Dehumidification Operation, 23°C, High Speed
 - Intake Air Temp < 21°C ➤ Heating Mode Operation, 24°C, High Speed
- While in forced operation, the key input by the remote control has no effect and the buzzer sounds 10 times to indicate the forced operation.

■ Remote Control Operation Mode

- When the remote control is selected by the slide switch on the main unit, the appliance operates according to the input by the remote control.

■ Protection of the evaporator pipe from frosting

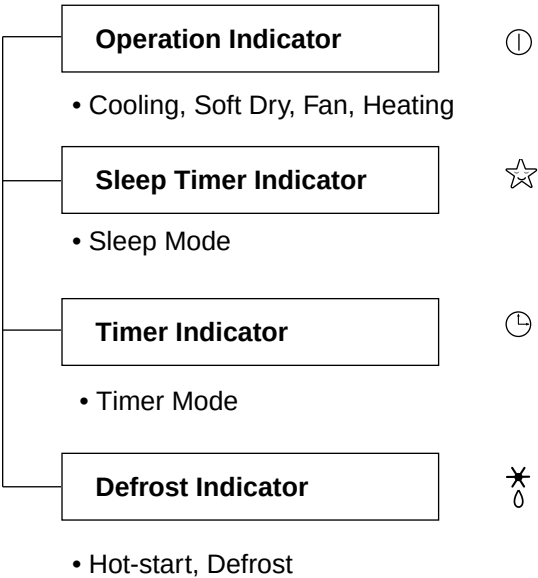
- If the indoor pipe temp is below 0°C in 7 min. after the compressor operates without any pause while in cooling cycle operation mode, the compressor and the outdoor fan are turned off in order to protect the indoor evaporator pipe from frosting.
- When the indoor pipe temp is 7°C or higher after 3 min. pause of the compressor, the compressor and the outdoor fan is turned on according to the condition of the room temperature.

■ Buzzer Sounding Operation

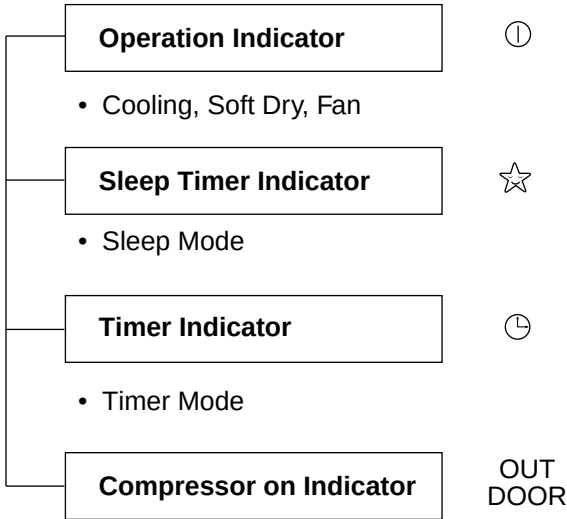
- When the appliance-operation key is input by the remote control, the short "beep-beep-" sounds.
- When the appliance-pause key is input by the remote control, the long "beep—" sounds.
- When a key is input by the remote control while the slide switch on the main unit of the appliance is on the forced operation position, the error sound "beep-beep-beep-beep-beep-" is made 10 times to indicate that the remote control signal cannot be received.

Display Function

1. Heating Model



2. Cooling Model



Self-diagnosis Function

■ Thermistor Error Indicator

- When the indoor pipe sensor or the room temperature sensor is open or is shorted, the error is indicated.
- To indicate the error, the operation LED (or the cooling LED) flashed at 3 sec interval.
- When the error is cleared, the LED stops flashing, the operation (or cooling) LED is on.
- While in appliance pause, the error is not indicated.